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**AN
INFANTRYMAN'S
GUIDE
TO URBAN
COMBAT**

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An Infantryman's Guide to Urban Combat

Preface

This manual provides infantry doctrine, tactics, and techniques for urban combat at battalion level and below.

The urban growth in all areas of the world places a high premium on the development of those skills described in this manual and on the highest standards of discipline and leadership.

Mere study of this manual will not produce competent city fighters. There is no substitute for hard, realistic, and challenging training which constantly practices the fundamentals. Infantry commanders and staffs should concentrate on the skills contained in chapters 3 through 5, but success in urban combat depends ultimately on how well the platoons, squads, and individual soldiers execute the tasks in the appendixes.

You may recommend changes to this manual to improve it. Key your comments to the page and line of text in which the changes are recommended. Give reasons for each comment to help us understand and evaluate it. To send changes or comments, prepare DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward to: Commandant, United States Army Infantry School, ATTN: ATSH-B-ID, Fort Benning, Georgia 31905.

The words, "he," "him," "his," "man," and "men," when used in this publication, represent both the masculine and feminine genders unless otherwise specifically stated.

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CHAPTER 1

The Tactical Impact of Urban Areas**GENERAL**

The worldwide growth of cities and industry, driven by population increases, has changed the terrain on which battles are likely to be fought. Infantrymen must understand how such changes affect terrain, tactics, organizations, and weapon performance.

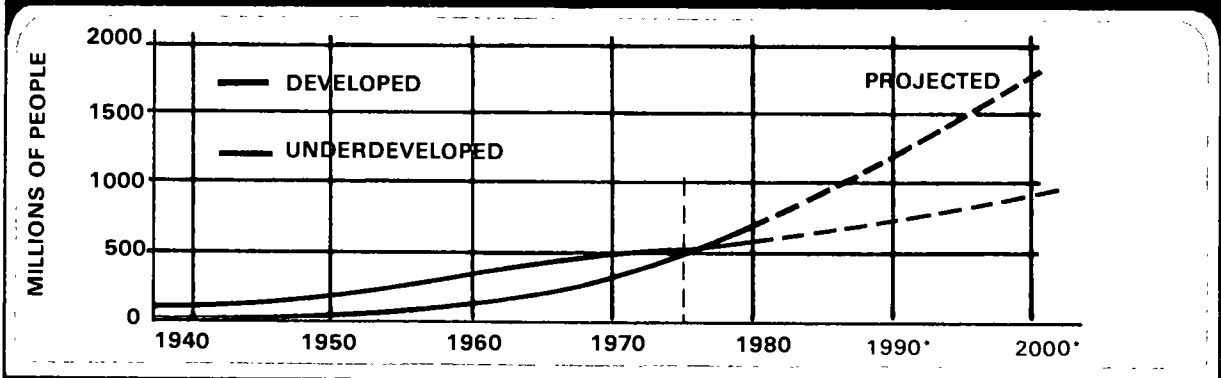
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EXPANSION OF URBAN AREAS

Urban population is expanding in both developed and developing countries. In developed countries, half the population lives in urban areas. In the USSR, for example, more than 60 percent of the people live in urban areas. With the introduction of modern technology into the developing countries, their urban growth rate is greater than that of the developed countries.

URBAN POPULATION GROWTH TRENDS



LOCATIONS OF LARGE CITIES

Most people think of North America as highly urbanized. Other continents, however, have more cities with populations over 100,000 and over 500,000 than does North America.

CITIES IN:	100,000 TO 499,999 POPULATION	OVER 500,000 POPULATION
NORTH AMERICA	195	41
LATIN AMERICA	144	19
EUROPE	567	81
ASIA	463	79
AFRICA	103	10

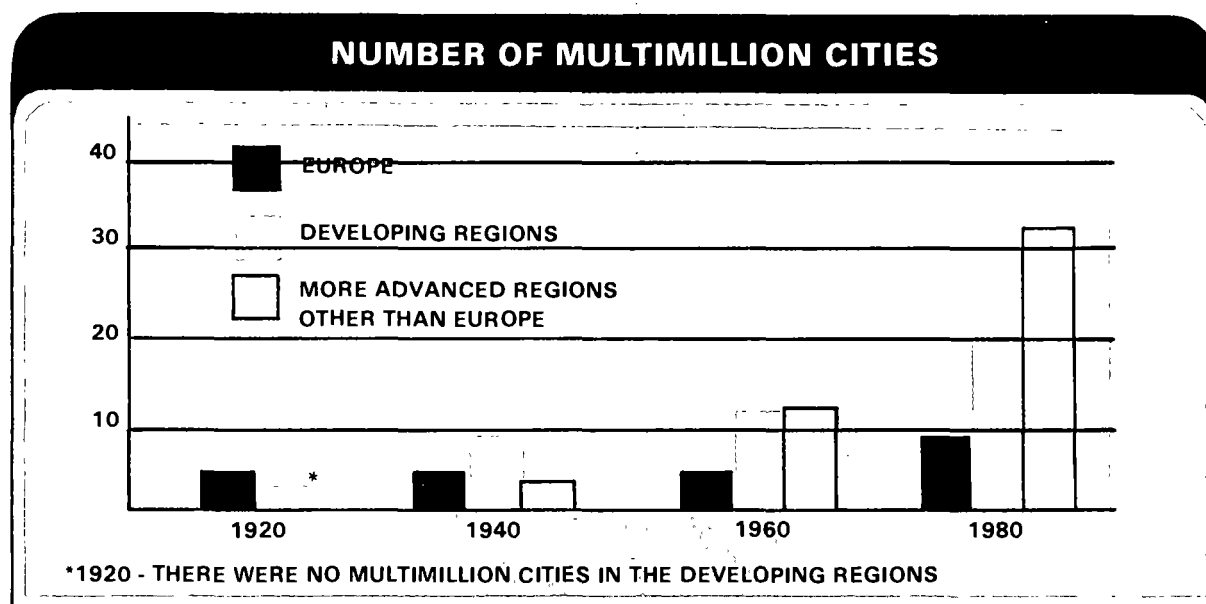
POPULATION DENSITY

Europe and Asia have more large cities than North America, and Latin America and Africa are not far behind. European countries, although less populous than Continental United States (CONUS), are much smaller and more crowded, as illustrated in the chart below.

	LAND AREA-THOUSANDS OF SQUARE MILES	PEOPLE PER SQUARE MILE
CONUS	3,680	60
FRANCE	211	250
WEST GERMANY	96	620
BELGIUM	14	1,000
NETHERLANDS	12	1,000

COMPARISON OF LARGE CITIES

A comparison of large cities shows how modern industrial influences have resulted in an accelerated urbanization in developing areas.



IMPORTANCE OF CITIES

Cities are important because they are centers of politics, transportation, communication, industry, and culture. For that reason, cities have often been locales of

important battles. Cities that have played an important part in 20th century warfare are listed below.

CITIES CONTESTED DURING 20TH CENTURY CONFLICTS

RIGA	1917	*MANILA	1945
MADRID	1936	*SAN MANUEL	1945
WARSAW	1939	*SEOUL	1950
ROTTERDAM	1940	BUDAPEST	1956
MOSCOW	1942	*BEIRUT	1958
STALINGRAD	1942	*SANTO DOMINGO	1965
LENINGRAD	1942	*SAIGON	1968
WARSAW	1943	*KONTUM	1968
*PALERMO	1944	*HUE	1968
*BREST	1944	BELFAST	1972
WARSAW	1944	MONTEVIDEO	1972
*AACHEN	1944	QUANGTRI CITY	1972
ORTONA	1944	AN LOC	1972
*CHERBOURG	1944	XUAN LOC	1975
BRESLAU	1945	SAIGON	1975
*WEISSENFELS	1945	BEIRUT	1975-1978
BERLIN	1945	MANAGUA	1978

*DIRECT US TROOP INVOLVEMENT

ADVANTAGES OF CONTROLLING A CITY

Operations in urban areas are conducted to capitalize on the strategic and tactical advantages of the city and to deny those advantages to the enemy. Frequently, the side that controls a city has a psychological advantage, sometimes great enough to determine the outcome of larger conflicts.

Even in insurgencies, combat occurs in cities. In developing nations, control of just a few cities is often the key to control of national resources. Thus, urban guerrilla war is fast replacing rural guerrilla war as the most common form of insurgency. The city riots of the 1960s, and the guerrilla

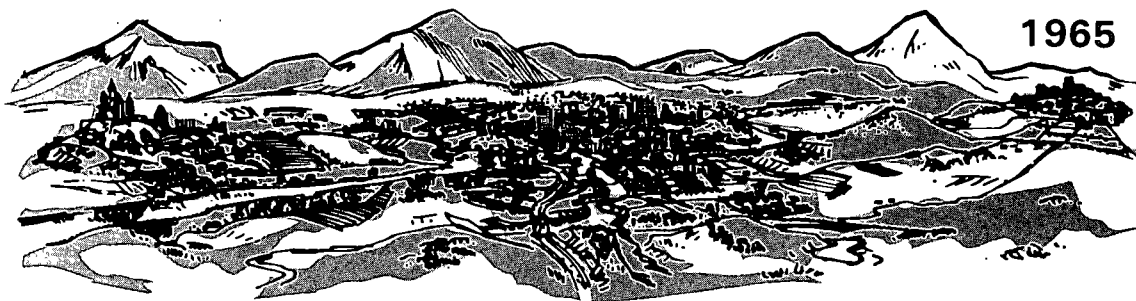
operations in Santo Domingo, Caracas, Belfast, Managua, and Beirut, point out the variety of situations that can result in urban combat operations.

EFFECT OF CITIES ON THE TERRAIN

Urban areas also affect military operations because of the way in which they alter the terrain. In the past, military men have tended to think of terrain as constant and unchanging. In the last 40 years

however, cities have spread out, losing their previously well-defined boundaries as they extend into the countryside. New road systems have opened up areas previously impassable. Highways, canals, and railroads have been built to connect population centers. Industries have grown along those connectors, creating "strip cities." Rural areas, although retaining much of their farmlike character, are connected to the towns by a network of secondary roads.

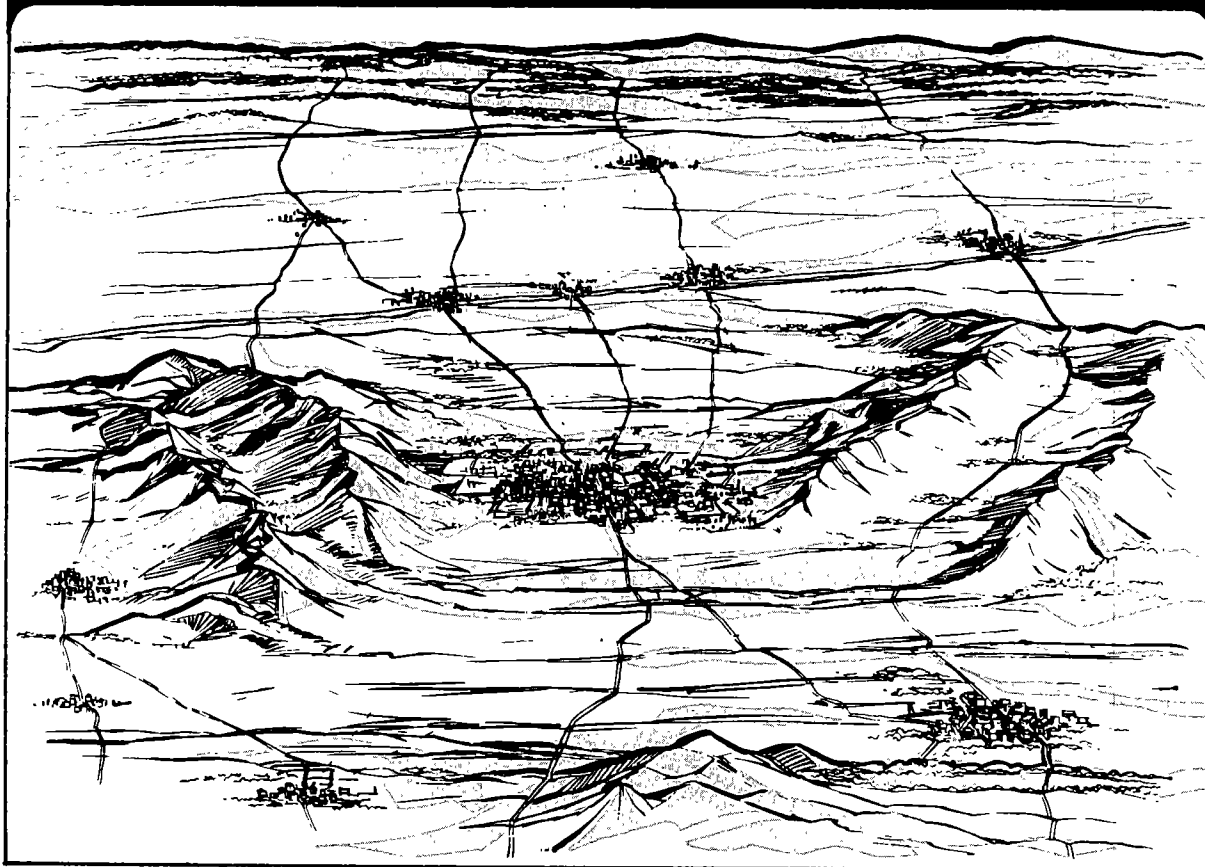
URBAN TERRAIN SPRAWL



AREA MOST AFFECTED BY URBANIZATION

These trends have occurred in most parts of world, but are most dramatic in Western Europe. European cities tend to grow together to form one vast urban area. Entire regions assume an unbroken urban character, as is the case in the Ruhr and Rhein Main complex. Such growth patterns block and dominate the historic armor avenues of approach, and in turn decrease the amount of open maneuver area available to an attacker. It is estimated, for example, that a typical brigade sector will include 25 small towns, most of which can be expected to lie in the more open avenues of approach.

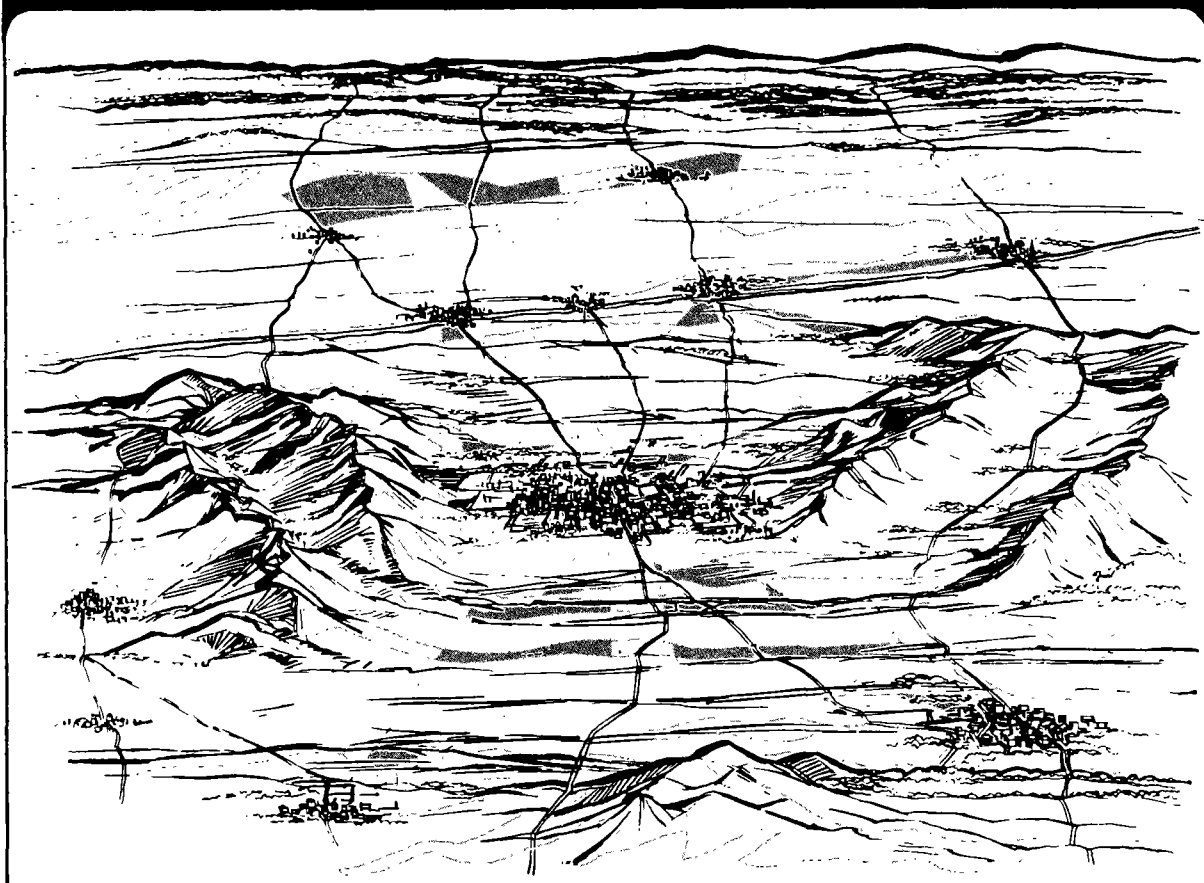
URBAN AREAS BLOCK MUCH OF THE MANEUVER AREA IN WEST GERMANY



EFFECT OF URBAN AREA ON DEFENDING FORCES

Extensive urbanization provides conditions that a defending force can exploit. Used in conjunction with mobile forces on the adjacent terrain, antitank forces defending from urban areas can dominate avenues of approach, greatly improving the overall strength of the defense.

THE FIELDS OF FIRE AVAILABLE TO A FORCE DEFENDING AREAS IN WEST GERMANY



Forces operating in such areas may have elements operating in open terrain, villages, towns or small cities, and large urban areas. Each of these areas calls for different tactics, task organization, fire support, and combat service support.

POSTURE OF SOVIET FORCES

The Soviet Union and other Warsaw Pact nations devote a large part of their training to urban combat exercises. In the last few years, they have published hundreds of articles on urban combat. It is apparent that they expect to have to fight in cities in any future combat.

BYPASS, ENCIRCLE, AND ISOLATE BUILT-UP AREAS

EMPHASIS OF SOVIET DOCTRINE

With the emphasis that their doctrine places on a speedy victory in war, it is not surprising that the Soviets plan to bypass, encircle, and isolate built-up areas where they can. They recognize, however, that some fighting in towns will be necessary. Their experience in World War II taught them this bitter lesson.

ATTACK FROM THE MARCH

Soviet doctrine states that the preferred form of attacking a city is to attack from the march in order to neutralize the city in the least time. If that attack fails, the Soviets will organize units for a deliberate instrength attack, attaching armor, artillery, and engineers to their attacking motorized rifle battalions. They will probably assault urban areas with very strong forces, because the loss of men and equipment is considered less important than the loss of time.

REQUIREMENTS FOR OFFENSIVE OPERATIONS

Soviet planners have developed a list of success requirements for offensive operations in urban areas. They are:

- **Concealed preparation of assault groups.**
- **The use of surprise in seizing enemy strongpoints at the city's edge.**
- **Rapid exploitation of initial success by the immediate follow-up of preparatory fires.**

- The use of heavy weapons in a direct fire role by task organized assault groups.

CHARACTERISTICS OF URBAN TERRAIN

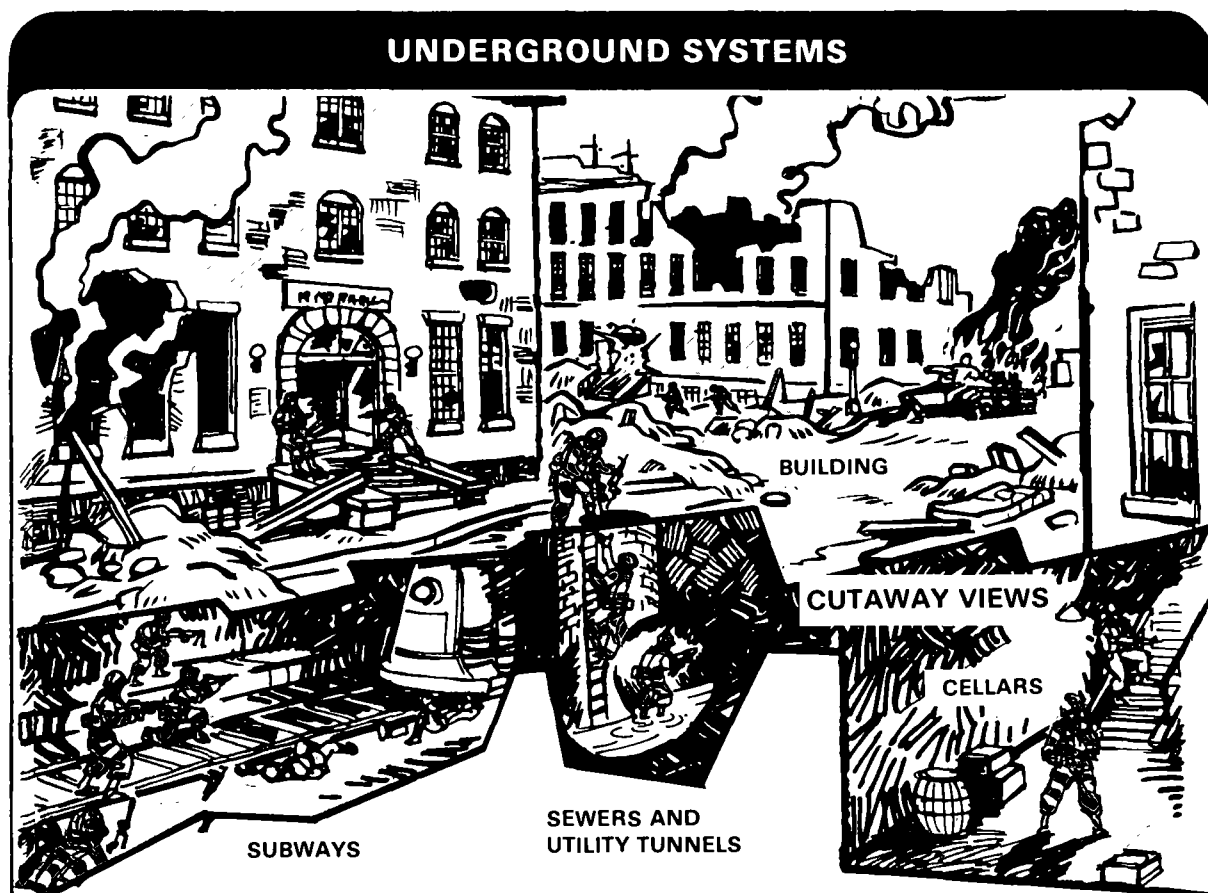
Urban terrain consists mainly of manmade features. Chief among those are buildings. Buildings provide cover and concealment, limit fields of observation and fire, and block movement, especially by mechanized troops. Thick-walled buildings provide readymade fortified positions. Thin-walled buildings, which have fields of observation and fire, may also be important.

USE OF STREETS

Urban streets are generally avenues of approach. However, forces moving along streets are often canalized by the buildings and have little space for off-road maneuver. Thus, obstacles on streets in town are usually more effective than those on roads in open terrain, because they are more difficult to bypass.

UNDERGROUND SYSTEMS MAY BE AVAILABLE

Underground systems found in some urban areas are easily overlooked but can be important to the outcome of operations. They include subways, sewers, cellars, and utility systems.



CIVILIANS LIMIT MANEUVER OPTIONS

Another factor in urban operations is the presence of civilians, often in large numbers. Concern for the safety of noncombatants may restrict the use of firepower and limit the maneuver options available to the commander. Furthermore, the need to support or evacuate civilians may require military resources. Plans for control of the civilian population must be developed. Civil affairs units and military police under the direction of the division G5 can provide support. The G5 must provide guidance to subordinate units on civil-military relations.

CATEGORIES OF URBAN AREAS

For reference, urban areas are classified into four general categories. These categories are—

- Villages (population of 3,000 or less).
- Strip areas (urban areas built along roads connecting towns or cities).
- Towns or small cities (population up to 100,000 and not part of a major urban complex).
- Large cities, with associated urban sprawl (population up to millions, covering hundreds of square kilometers).

Each of these areas affects operations differently. Villages and strip areas will be commonly encountered by companies and battalions. Towns and small cities will involve operations of entire brigades or

divisions. Large cities and major urban complexes will involve units up to corps size and above.

NATURE OF URBAN COMBAT

Urban battles usually occur when—

- A city is between two natural obstacles, and there is no bypass.
- The seizure of a city contributes to the attainment of an overall objective.
- The city is in the path of a general advance and cannot be surrounded.
- Political or humanitarian concerns require the seizure or retention of a city.

SOLDIERS NEED SPECIAL TRAINING

As combat in modern nations can no longer avoid urban areas, tactical planning and training must now take into account the problems that those areas present. Individual soldiers must also be well prepared for the demands of urban combat. In short, troops in the next war must be trained and psychologically prepared for urban operations in much the same way as they must be prepared to cross rivers or to operate in chemically contaminated areas.

STRUCTURES MAKE TARGETS HARD TO ENGAGE

In the city, the ranges of observation and fields of fire are reduced by structures as well as by the dust and smoke of battle. Targets will generally be exposed briefly at ranges of 100 meters or less. As a result, urban combat will consist largely of close, violent combat. Infantry troops will, of necessity, use light antitank weapons (LAW), automatic rifles, and hand grenades extensively. Opportunities for using antitank guided missiles (ATGM) will be rare because of the short ranges involved and the numerous obstructions that interfere with missile flight.

SMALL-UNIT BATTLES ARE FOUGHT

Units fighting in urban areas often become isolated, making urban combat a series of small-unit battles. Soldiers and small-unit leaders must have the initiative, skill, and courage to accomplish their missions while isolated from their parent units.

A skilled, well-trained defender has tactical advantages over the attacker in urban combat. He occupies strong positions, whereas the attacker must expose himself in order to advance. In addition, the greatly reduced line-of-sight ranges, built-in obstacles, and compartmented terrain require the commitment of more troops for a given frontage. So, the troop density for both an attack and a defense in urban terrain will be as much as three to five times greater than for an attack or a defense in open terrain.

REQUIREMENTS FOR MUNITIONS AND EQUIPMENT ARE INCREASED

Forces engaged in urban fighting use large quantities of munitions. That is caused

mainly by the need for reconnaissance by fire, due to short ranges and limited visibility. LAWs, rifle and machinegun ammunition, 40-mm grenades, hand grenades, explosives, and flame weapons are especially high usage items in urban fighting.

Units committed to urban combat also must have special equipment, such as grappling hooks, rope, snaplinks, construction material, axes, sandbags, and ladders. When possible, those items should be either stockpiled or brought forward on call, so that they will be available to the troops without encumbering them.

RADIO COMMUNICATIONS ARE DIFFICULT

Another characteristic of urban combat is degraded radio communications caused by the mass of buildings. This, combined with the difficulty of observation, makes control more difficult. Urban operations require centralized planning and decentralized execution. Commanders must have faith in their subordinates' initiative and skill, which can only come through training. The state of a unit's training is a vital—occasionally even a decisive—factor.

SOLDIERS FEEL STRESS

A related problem is the stress of urban combat. Continuous close combat, intense pressure, high casualties, the fleeting nature of targets, and fire from an unseen enemy produce psychological strain and physical fatigue. Stress of urban combat places greater importance on the soldiers' and small-unit leaders' morale and the unit's esprit de corps. Stress can be reduced by rotating units that have been committed to heavy fighting out of the frontlines as the situation permits.

**LEADERS MUST NOT
PERMIT LOOTING**

Urban combat historically has presented chances for looting. When soldiers loot, they are tempted to discard needed equipment so they can carry their loot, causing a loss of combat efficiency. Looting can result in the breakdown of discipline, reduce alertness, increase vulnerability, and delay the progress of the unit. Looting also alienates the civilian population. Leaders must strictly enforce orders against looting and sternly punish violators. Discipline must be tough.

**COMMANDERS MAY BE
RESTRICTED**

Finally, commanders may be restricted in the weapons and tactics they are allowed to use, to avoid unnecessary damage to a city. That may be a handicap at the time, but it may be necessary to preserve a nation's cultural institutions and to gain the support of its people. Units must be highly disciplined so that the commander's instructions are understood, quickly disseminated, and obeyed to the letter.

CHAPTER 2

Urban Terrain Analysis at Battalion Level and Below

GENERAL

To succeed as urban fighters, commanders and leaders must know the nature of urban terrain.

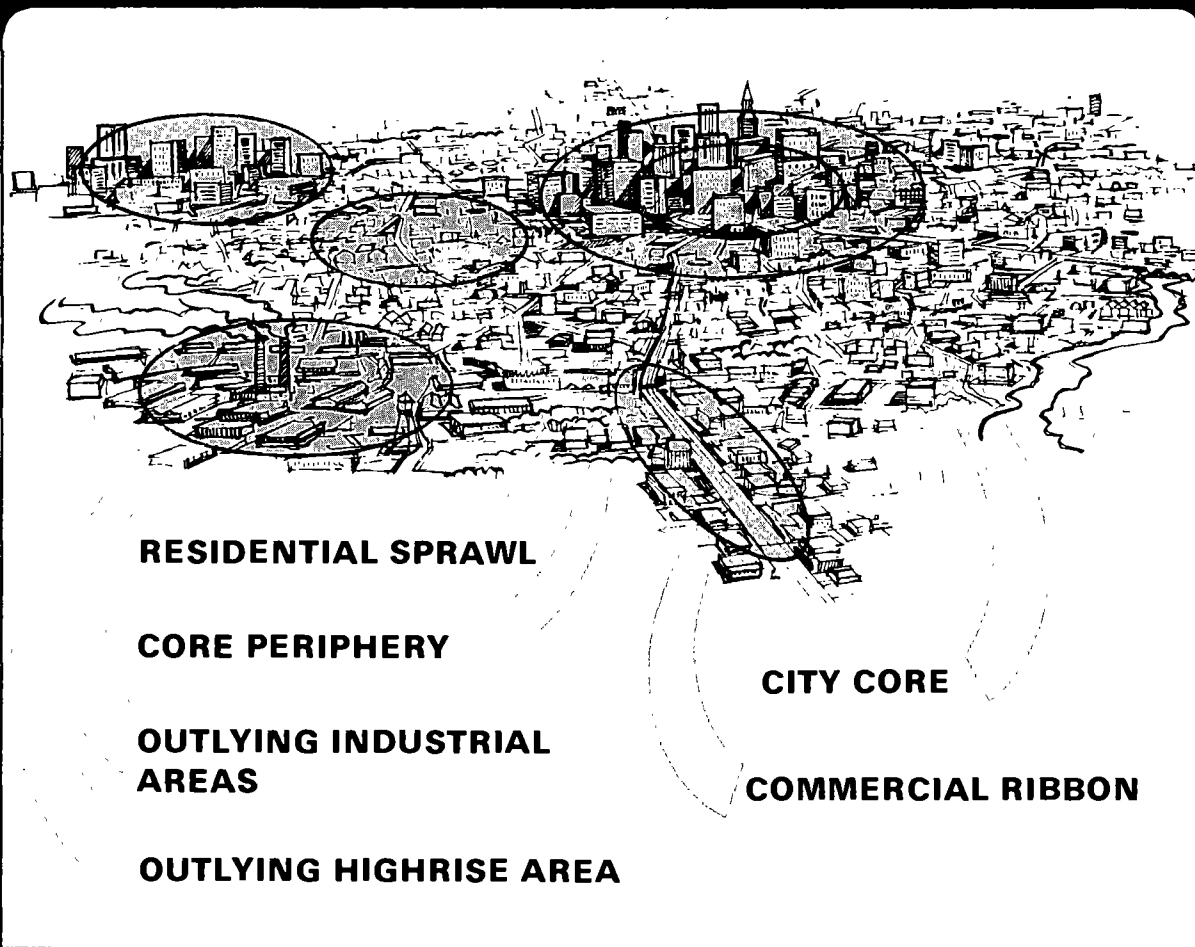
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CHARACTERISTICS OF BUILDINGS

Most urban areas resemble the generalized model shown here.

A TYPICAL URBAN AREA



Urban areas differ based on their location, size, and history. Towns, for example, have lower buildings than cities. They may not have developed outlying highrise areas. In general, however, an observer flying over any city or town will notice a resemblance to this urban model, especially if the area has been redeveloped in the past 30 years.

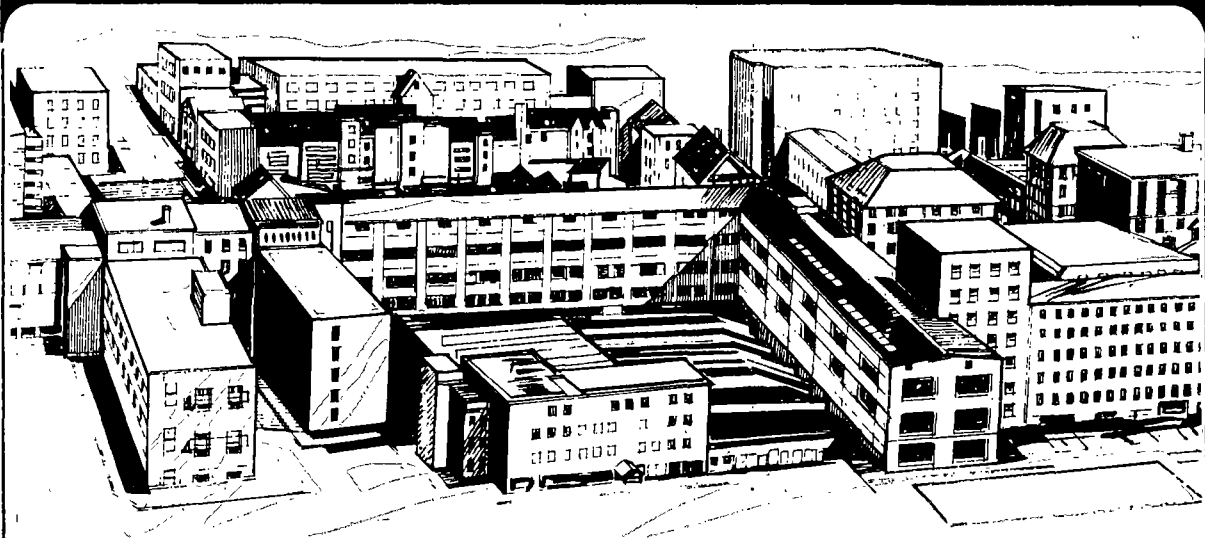
Each of the model's regions has distinctive characteristics. Outlying industrial areas and residential sprawl, for instance, consist of low buildings, one to

three stories tall. Buildings are detached and arranged in irregular patterns along the streets. There are many open areas.

RESIDENTIAL SPRAWL



OUTLYING INDUSTRIAL AREAS



CORE PERIPHERY

The core periphery consists of narrow streets (12 to 20 meters wide) with continuous fronts of brick and heavy-walled concrete

buildings. The height of buildings is generally uniform—2 or 3 stories in small towns, 5 to 10 stories in large cities.

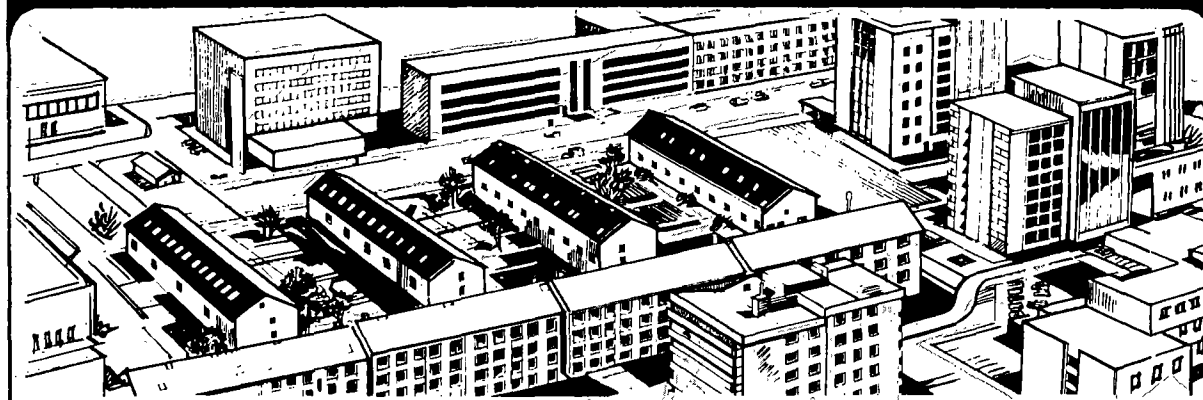
CORE PERIPHERY



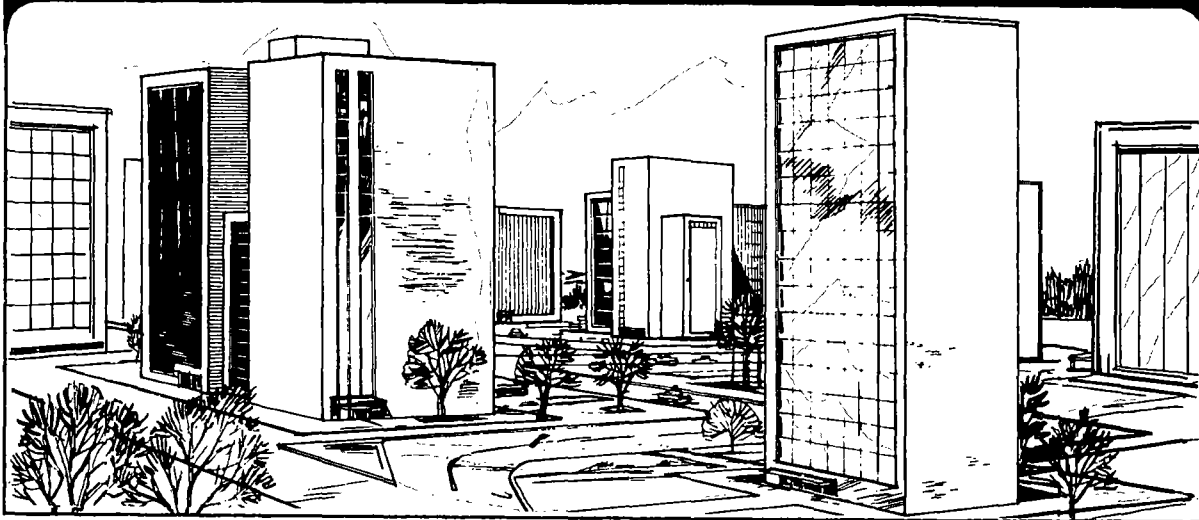
In most cities, the core has undergone more recent development than the core periphery. As a result, the two regions are often quite different. Typical city cores of today are made up of highrise buildings, which vary greatly in height. Modern urban

planning allows more open space between buildings than that allowed in the old city cores or in core peripheries. Outlying highrise areas are dominated by this open construction style to a greater degree than city cores.

CITY CORE



OUTLYING HIGHRISE AREA

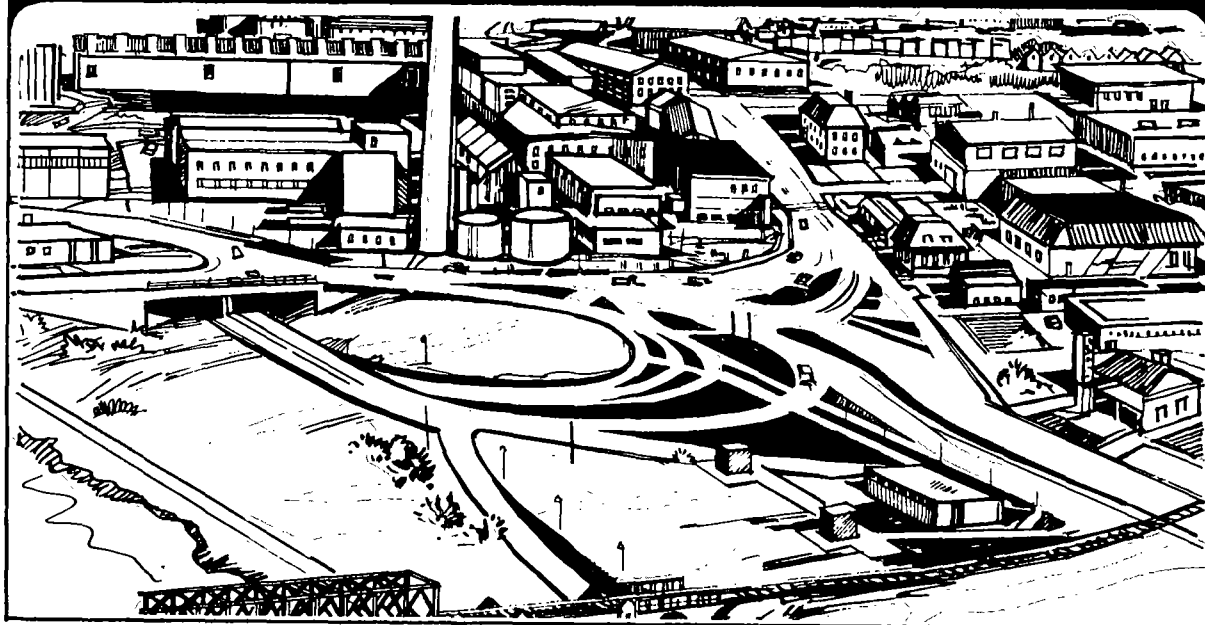


COMMERCIAL RIBBONS

Commercial ribbons are rows of stores, shops, etc., built along either side of major streets through the built-up areas. Generally,

those streets are 25 meters wide or wider. The buildings are uniformly two to three stories tall, about one story taller than the dwellings built on the streets behind them.

COMMERCIAL RIBBON



In addition to their height, the buildings in each of the urban regions also have certain other characteristics in common.

TYPES OF BUILDING CONSTRUCTION

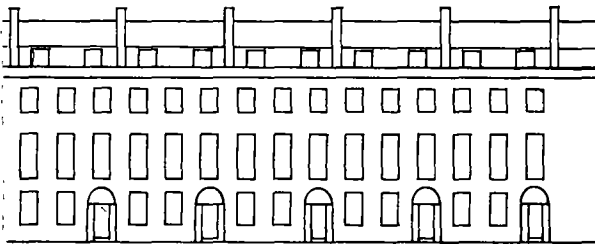
The two basic types of building construction are mass (or frameless) and framed. Mass-construction buildings are those in which the outside walls support the weight of the building and its contents. The older mass-construction buildings are

usually made of thick brick or stone walls. Mass-construction buildings normally have thicker walls and fewer windows than framed buildings. The windows in mass-construction buildings must be aligned vertically so the walls can support the weight of the building.

Modern types of mass-construction buildings are wall and slab structures, such as many modern apartments and hotels, and tilt-up structures, commonly used for industry or storage.

MASS BUILDINGS

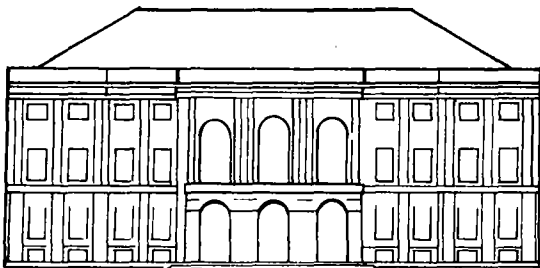
MASS-CONSTRUCTION BRICK BUILDING



SMALL VERTICALLY
ALIGNED WINDOWS

THICKER
LOWER STORY
WALLS

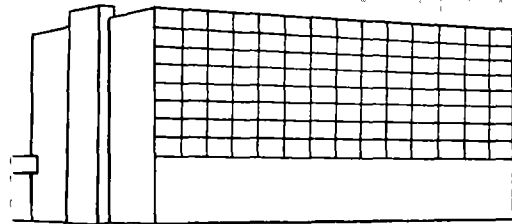
MASS-CONSTRUCTION STONE BUILDING



THICK WALLS

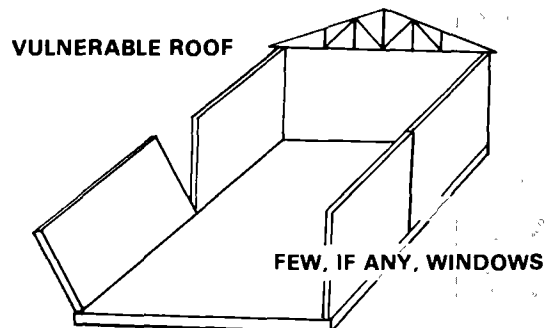
DEEPLY RECESSED
WINDOWS

WALL AND SLAB BUILDING



TILT-UP BUILDING

CONCRETE



Framed buildings are those supported by a skeleton of columns and beams. They are usually taller than frameless buildings. The exterior walls are not load bearing and are referred to as either heavy clad or light clad. Heavy-clad walls were common when framed

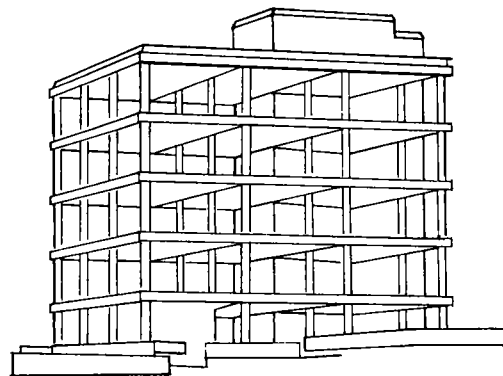
buildings were first introduced. Those walls are made of brick and block, and in some cases are almost as thick as frameless brick walls, although not as protective. Light-clad walls are more modern and may consist of nothing more than glass.

FRAMED BUILDINGS

FRAMED BUILDING SKELETON

CONCRETE OR STEEL
COLUMNS

LARGE OPEN
BAYS

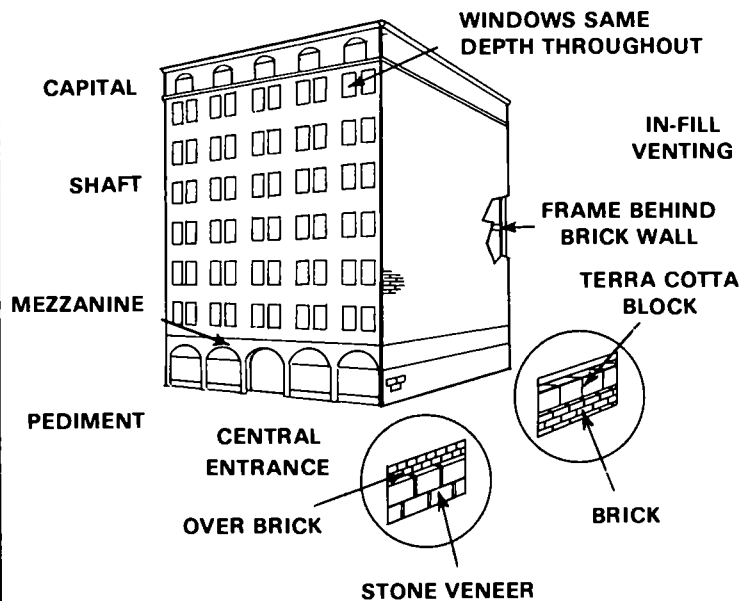


CENTRAL CORE (NYLON)
FOR SERVICES

SLAB FLOORS

EXTERIOR NEARLY ALL
GLASS OR OTHER THIN
MATERIAL

HEAVY-CLAD WALLS



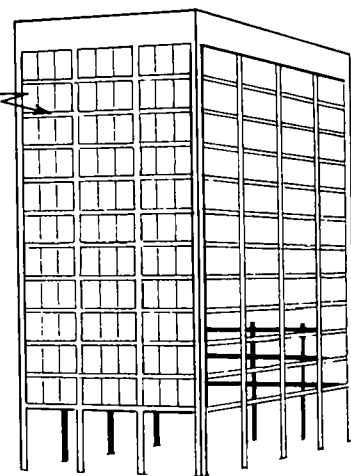
LIGHT-CLAD WALLS

IN-FILL
VENTING

FRAME BEHIND
BRICK WALL

TERRA COTTA
BLOCK

BRICK



The properties of framed and frameless buildings are shown in the following chart.

PRINCIPAL BUILDING CHARACTERISTICS			
TYPE OF CONSTRUCTION	BUILDING MATERIAL	HEIGHT (STORIES)	AVERAGE WALL THICKNESS (CM)
MASS	STONE	1-10	75
MASS	BRICK	1-3	22
MASS	BRICK	3-6	38
MASS	CONCRETE BLOCK	1-5	20
MASS	CONCRETE WALL AND SLAB	1-10	22-38
MASS	CONCRETE "TILT-UPS"	1-3	18
FRAMED	WOOD	1-5	3
FRAMED	STEEL (HEAVY CLADDING)	3-50	30
FRAMED	CONCRETE/STEEL (LIGHT CLADDING)	3-100	2-8

TERRAIN ASPECTS OF BUILDINGS

A guide to evaluating the terrain aspects of buildings follows:

Observation and fire. Buildings on the edge of a city often provide better fields of fire than buildings in the interior. In the city itself, tall buildings with numerous windows often provide the best fields of fire, especially if the buildings have spaces between them.

Cover and concealment. Buildings with thick walls and few, narrow windows provide the best cover and concealment. Roofs provide little protection; troops are better

protected in the upper stories than right under the roof. (An exception to this rule is the parking garage.) Floor layouts with many small rooms provide more protection than floor layouts with larger rooms. Interior load-bearing walls provide good protection. Older walls that are not load bearing usually provide better protection than newer ones.

Obstacles. Doors and fire barriers are common in commercial buildings. They become obstacles if they are shut and secured. Furniture and appliances can also

become obstacles in a building. Barbed wire, mines, etc., can be used effectively inside a building because movement is canalized.

Key terrain. Key "terrain" in a building includes entrances, hallways, and stairs. Troops that control those places control the building. An attacker, for instance, will be able to isolate the defender so that he cannot escape or be reinforced. A defender will be able to deny the building to the attacker, or make the seizure of the building so costly that the attacker is forced to bypass it. Another key feature is a room which is large enough to permit firing of recoilless weapons, Dragons, or TOWs from the inside. Balconies and mezzanines with enough backblast area are particularly useful, as they provide an elevated platform for those weapons.

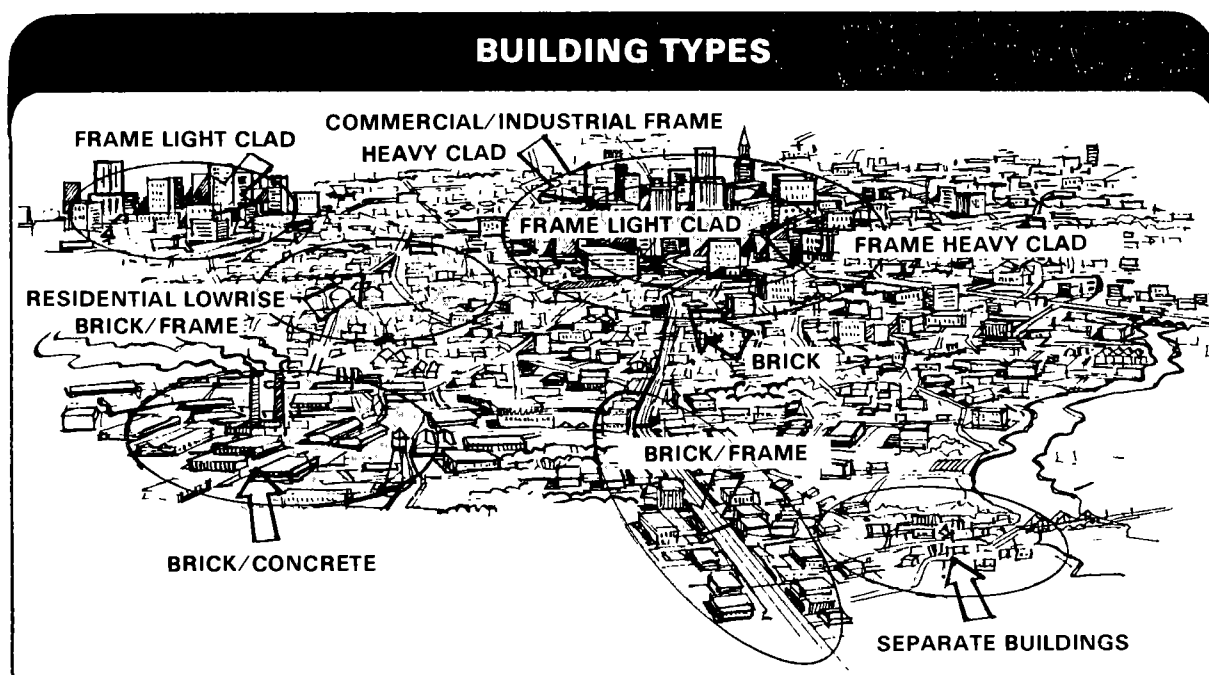
Avenues of approach. The best way to attack a building is from the top down. The most important avenue of approach to look for is therefore one that leads quickly to the top. If there is an outside way to the top that

has cover and concealment, that is the best way into the building. Examples of such routes are fire escapes, drainpipes, or adjacent buildings. If there is no such route, attacking troops must use the stairs, get to the top of the building, and clear from the top down. Defending troops will likely control the elevator, so an attacker will find the stairs a better approach.

The preceding information on buildings is a guide only. Leaders should evaluate their own buildings based on that information. More on buildings is at appendix C.

INTRACITY DISTRIBUTION OF BUILDING TYPES

Certain types of buildings dominate certain parts of a city. This establishes patterns within a city. Analysis of the distribution and nature of these patterns has a direct bearing on military planning and weapon selection. This model illustrates a distribution of building types.



Mass-construction buildings are the most common structures in built-up areas, forming about two thirds of the total. Brick structures alone account for nearly 60 percent of all buildings, especially in Europe.

Steel and concrete framed multistory buildings have an importance far beyond their one-third contribution to total ground floor area. They occupy core areas—a city's most valuable land—where, as centers of economic and political power, they have a high potential military significance.

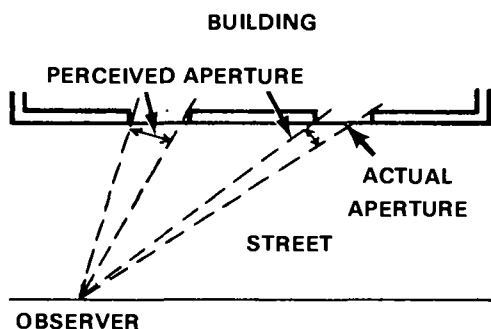
Open space accounts for about 15 percent of an average city's area. Most of that space is suitable for helicopter landings and takeoffs. Many open spaces are grass-covered and function as parks, athletic fields, and golf courses; some are broad, paved areas. Spaces that could be used for airmobile operations are found mostly in these areas. The largest open spaces are associated with suburban housing developments where

large tracts of land have been set aside for recreation. Those spaces are sometimes adequate for parachute assault.

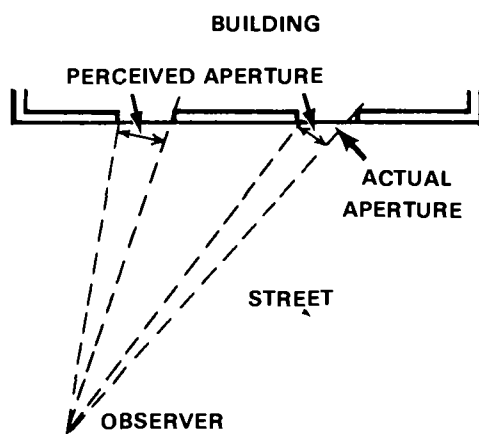
LINE-OF-SIGHT FACTORS

Streets serving areas composed mostly of one type of building normally have a common pattern. In downtown areas, for example, high land values result in narrow streets. Street widths are grouped into three major classes: 7 to 15 meters, found in such places as medieval sections of European cities; 15 to 25 meters, found in newer, planned sections of most cities; and 25 to 50 meters, where buildings are located along broad boulevards or set far apart on large parcels of land. When a street is narrow, observing or firing into windows of a building across the street can be difficult because an observer is forced to look along the building rather than into windows. When

LINE-OF-SIGHT DISTANCES AND ANGLES OF OBLIQUITY



① NARROW STREET



② WIDE STREET

the street is wider, the observer has a better chance to look and to fire into the window openings.

SOURCES OF URBAN INFORMATION

Operations in urban terrain require detailed intelligence. Collecting, compiling, analyzing, and applying the needed information takes time. Commanders should have the following material for planning operations. (*For additional information requirements, see FM 30-10.*)

MAPS

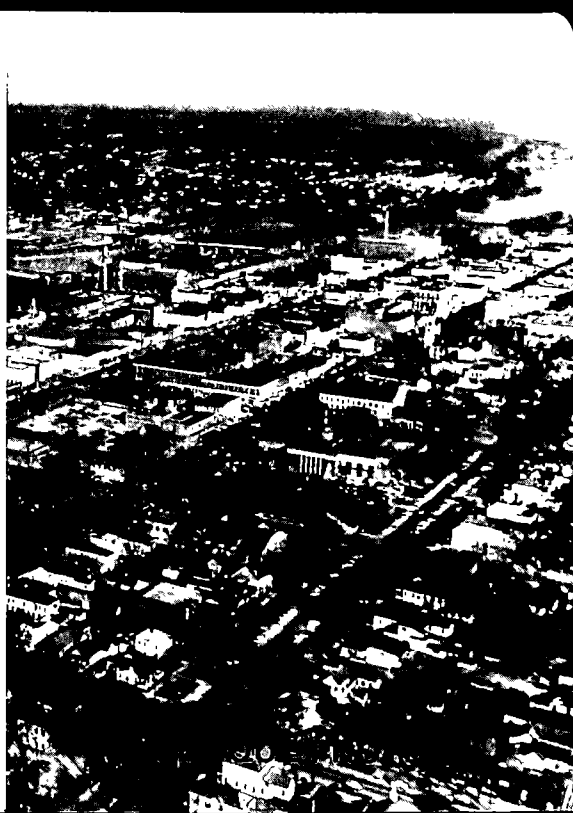
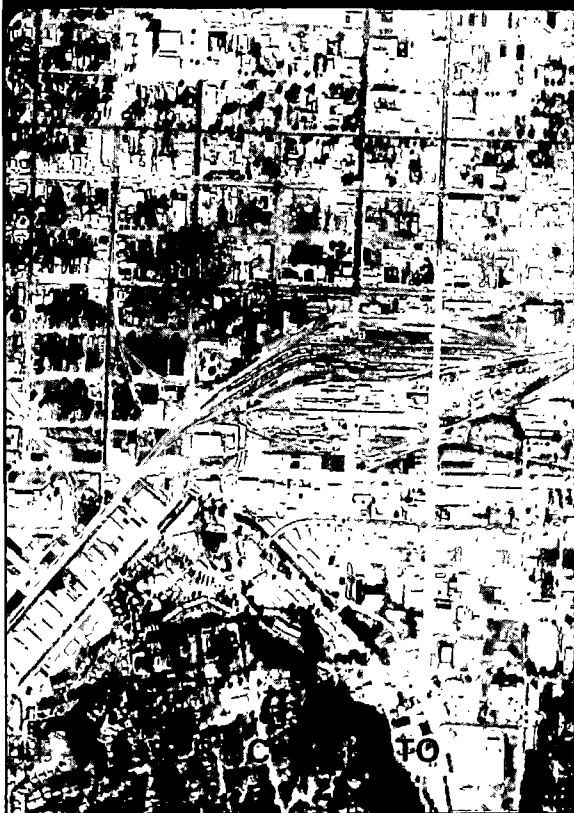
Tactical maps do not show manmade features in enough detail for tactical opera-

tions in urban terrain. However, they do show the details of terrain adjacent to urban terrain. Tactical maps should be supplemented with current aerial photos and local city maps.

AERIAL PHOTOS

Aerial photos provide commanders with details needed for planning. Photo coverage should include adjacent open terrain. It should be a mixture of vertical and oblique photos. A map grid, preferably 1:25,000, should be superimposed on vertical photos to improve their usefulness. For maneuver control and fire support, buildings, streets, and open areas should be identified on the map or photo using a numbering or lettering system.

AIR PHOTOS



ENGINEER INFORMATION

Supporting engineer units **should analyze the area and—**

- Plan obstacles for the urban area and adjacent terrain.
- Identify roads, streams, and bridges.
- Plan demolition targets and estimate requirements for explosives.
- Locate sources of engineer construction material and equipment.

CIVIL GOVERNMENT AND LOCAL MILITARY FORCE INFORMATION

Considerable current information on practically all details of a city can be obtained from civil governments and local military forces. Liaison and a close working relationship should be developed between US forces and appropriate local forces. **The following is a list of information and material that may be available from such sources—**

- Large-scale city maps.
- Diagrams of underground--
 - sewer,
 - utility,
 - transport, and
 - miscellaneous systems.

- Key personnel rosters.
- Firefighting information.
- Police and security capabilities.
- Population size and density.
- Civil defense and air raid shelters.
- Civil evacuation plans.
- Water supply and distribution systems.
- Fuel and gas supply and storage facilities.
- Electric power stations and emergency electrical means.
- Key public buildings.
- Medical facilities, ambulances, and supplies.
- Mass communications facilities (radio, telephone, television, newspapers).
- English translators.
- Food supplies (perishable/nonperishable).
- Telephone directories.
- Location of local construction materials.
- Available civil labor forces.

(The Geneva Accords prohibit use of civilians in combat. However, they may be used before the battle reaches the city. Guidelines for use of civilian labor should be published by the division G5.)

CHAPTER 3

Offensive Operations**GENERAL**

While a decision to attack a major urban area generally rests at a level higher than battalion, commanders at all levels must be prepared to fight in such areas.

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A commander may attack an urban area—

- to secure and control critical features (bridges, road nets, etc.).
- to return the area to friendly control for political reasons,
- to contain an enemy force, or
- because it cannot be bypassed.

Urban attacks are avoided when—

- seizure of the area is not required to support future operations and bypassing is tactically feasible,
- sufficient force is not available to seize and clear the area, or
- the area has been declared an “open city” to prevent civilian casualties or preserve cultural or historical sites.

The good cover and concealment in an urban area initially gives its defenders the

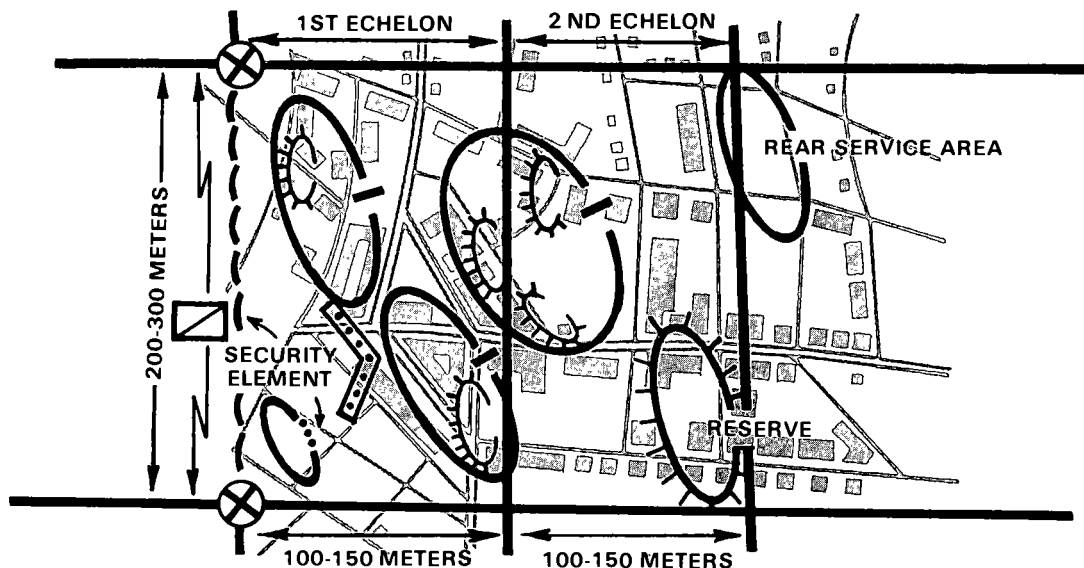
advantage. Attackers must fight from the outside into a well-defended position.

HOW THE THREAT DEFENDS

Motorized rifle battalions usually defend in urban areas in two echelons. Their defense normally has:

- Company or platoon strong-points.
- A reserve, in a separate strong-point.
- Security elements posted forward of strongpoints.
- Ambushes and obstacles between strongpoints.
- Underground routes to connect positions.
- Dummy strongpoints to deceive attackers.
- A rear service area.

MOTORIZED RIFLE BATTALION DEFENSIVE AREA



STRONGPOINTS

Companies prepare strongpoints by defending several mutually supporting buildings. Platoons defend either one or two buildings within a company strongpoint or one floor of a large building.

Strongpoints are prepared in sturdy buildings. Wooden buildings are avoided. If they block fields of fire they are destroyed. Covered routes are established within each strongpoint, either through the buildings, through underground routes, or behind barricades. Shelters for protection from nuclear weapons effects are set up in basements.

Weapons are positioned to dominate key intersections and streets.

DEFENSIVE FIRE PLANNING

Companies attempt to plan their fire so it is a combination of flanking, interlocking, and layered fire from all weapons.

Weapons are deployed to provide layers of fire on the flanks and rear of approaches to a defensive area.

Fire is tied in with obstacles to cover open areas. Mines may be deployed in gaps between strongpoints on approaches.

LAYERED FIRE



THREAT COMBINED ARMS IN DEFENSE OF AN URBAN AREA

A motorized rifle battalion is the unit most commonly deployed in urban terrain. Other elements are attached to or in support of the motorized rifle battalion.

Tanks. A motorized rifle battalion has tanks attached to reinforce antitank defense, to fight as "roving guns," or to be positioned in strongpoints. Tanks may be used in ambushes, where they are employed primarily against attacking tanks.

Artillery. Artillery fire causes attacking tank commanders to close their hatches and helps to separate the tanks from dismounted infantry. In addition to their normal indirect fire employment, a great number of artillery pieces are deployed well forward as direct fire support.

Mortars. With their high-angle fire, portability, and high rate of fire, mortars are used extensively in urban combat. The Threat has heavy mortars, 160 mm to 240 mm, for use in urban areas.

Smoke. Maneuver between strongpoints, defensive areas, and buildings that do not have concealed routes between them is concealed by smoke.

Antitank crews. Firing positions are prepared from which antitank crews can cover streets and other expected routes of attack where fields of fire are good.

Chemical defense elements. When attached to a motorized rifle battalion, these elements may perform radiological and chemical reconnaissance in order to detect the effects of nuclear, biological, and chemical (NBC) weapons and determine the types, degrees, and areas of contamination.

Frontal (tactical) aviation. Aircraft are used to strike concentrations of attacking troops, nuclear delivery means, artillery units, and forces trying to bypass or encircle an urban area.

Helicopters. These may help by—

- delivering cargo to defending units that are isolated,
- inserting reconnaissance and ambush forces in the attacker's rear area, and
- striking armored forces on approaches.

Political officers. Based on the commander's guidance, the deputy commander for political affairs plans the party-political support for the combat missions. The political plan might stress that a defended building must be a fortress, and that the force which is morally stronger and better prepared mentally will be the victor.

OTHER THREAT DEFENSIVE TECHNIQUES

During an artillery preparation delivered on their positions, defending troops are sometimes kept on standby in shelters. When the preparation is lifted, those troops move forward and occupy their primary defensive positions. Defenders strive to separate attacking infantrymen from tanks so that the tanks may be destroyed at short ranges by antitank weapons. Motorized rifle companies will counterattack before a

penetrating force has time to prepare a hasty defense.

CHARACTERISTICS OF URBAN OFFENSIVE OPERATIONS

Offensive operations in urban areas are based on offensive doctrine, modified to fit the peculiarities of the area. At battalion level, the offense will take the form of either a **hasty** or a **deliberate** attack.

A **Hasty Attack** is conducted when retaining momentum is crucial. Hasty attacks are feasible when the enemy has not fortified his positions, permitting the attacking force to overwhelm the defense without protracted combat.

A **Deliberate Attack** is conducted when avoiding risks is crucial. Deliberate attacks are required when enemy positions are well prepared, when the urban area is large or severely congested, or when surprise has been lost. The attack is characterized by thorough reconnaissance, planning, and coordination.

THE HASTY ATTACK

Three tasks are common to a hasty attack. **They are:**

- Find a weak point or gap in enemy defenses.
- Fix forward enemy elements.
- Quickly move through or around the weak point or gap.

Those tasks cannot always be executed in the same order. Commanders must exploit opportunities as they appear. For example, leading units of a battalion may be engaged with forward enemy elements when it becomes apparent that a weak point exists in the defensive position. In another case, a reconnaissance force may discover a gap and then be ordered to seize the terrain controlling the gap to prevent enemy reinforcement. In any case, speed is essential. If momentum is lost, the hasty attack will fail.

Because an urban area is itself an obstacle, a hasty attack in such an area is conducted somewhat differently than in open terrain. Incomplete intelligence and the concealment available in an urban area may require the maneuver unit to move through, rather than around, the friendly unit fixing the enemy in place. Control and coordination become most important to reduce congestion at the edge of the urban area.

Follow-up "on order" missions or fragmentary orders may be given to a force making a hasty attack so it can react to a contingency once its objective is secured.

THE DELIBERATE ATTACK

There are normally three steps in the deliberate attack of an urban area. **They are:**

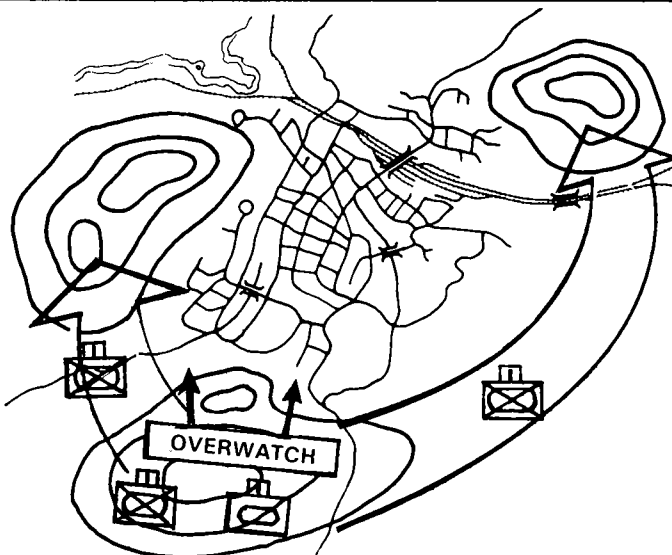
- Isolate the area (objective).
- Secure a foothold.
- Clear the area.

Isolating the area involves seizing terrain that dominates the area so that the enemy cannot supply or reinforce its defenders. This step may be taken at the same time as the foothold and clearance steps. After isolating the area, there should be no pause before the following steps.

ISOLATION BY A BATTALION TASK FORCE

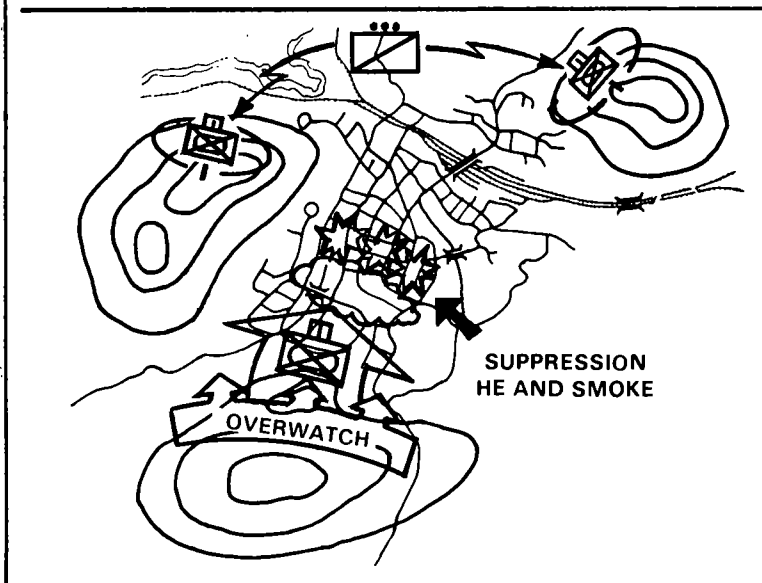
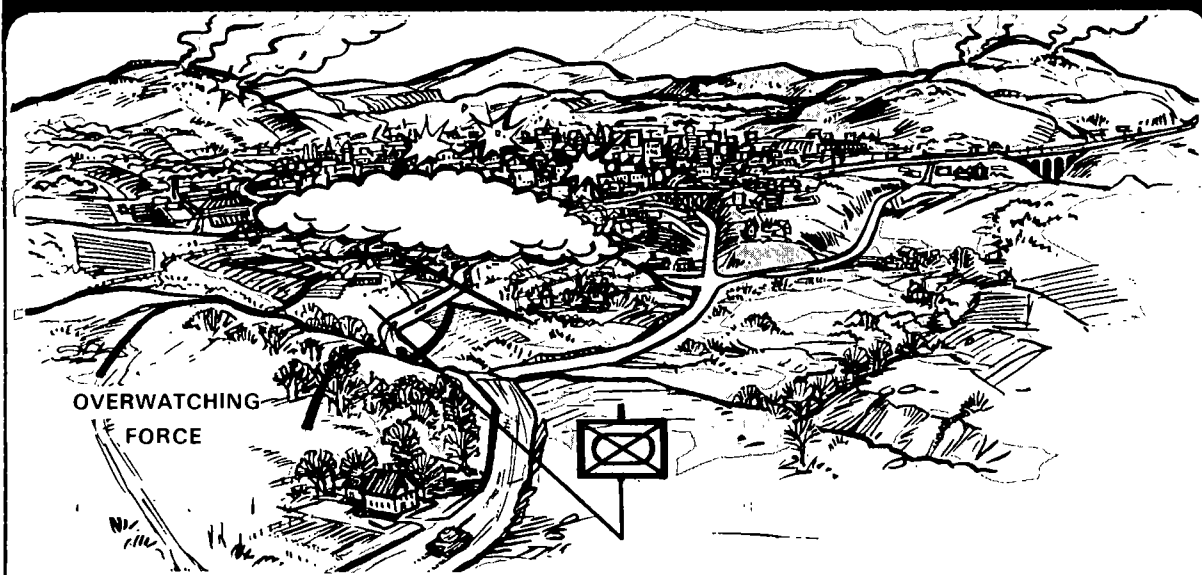


**NO PAUSE
AFTER ISOLATION.**



Securing a Foothold involves seizing an intermediate objective that provides cover from enemy fire and a place for attacking troops to enter the urban area. A foothold is normally one to two city blocks and is an intermediate objective of a company. As the company attacks to secure the foothold, it should be supported by suppressive fire and smoke.

BATTALION FOOTHOLD



**SUPPORT WITH
SUPPRESSIVE FIRE
AND SMOKE.**

The attacking commander considers the factors of mission, enemy, terrain and weather, and troops and time available (METT) in determining to what extent the built-up area must be cleared.

The commander may decide to clear only those parts necessary for the success of his mission if:

- An objective must be seized quickly.
- Enemy resistance is light or fragmented.
- The buildings in the area are of light construction with large open areas between them. In that case, he would clear only those buildings along the approach to his objective, or only those buildings necessary for security.

CLEARING BUILDINGS ALONG THE ROUTE OF AN ATTACK



On the other hand, a unit may have a mission to systematically clear an area of all enemy, or it may assume that mission in the face of strong, organized resistance or in areas having strong buildings close together. In that case, one or two companies may attack on a narrow front against the enemy's weakest sector. Those companies move slowly through the area, clearing systematically from room to room and building to building. The other company supports the clearing units and is prepared to assume their mission.

SYSTEMATIC CLEARANCE WITHIN ASSIGNED SECTORS



PLANNING THE ATTACK

A plan for the attack of a well-defended urban area must be based on METT. As in any attack, the plan must have a scheme of maneuver and a plan of fire support. These are developed concurrently and closely integrated. The plan must also cover the details of security, combat service support, and communications.

SCHEME OF MANEUVER

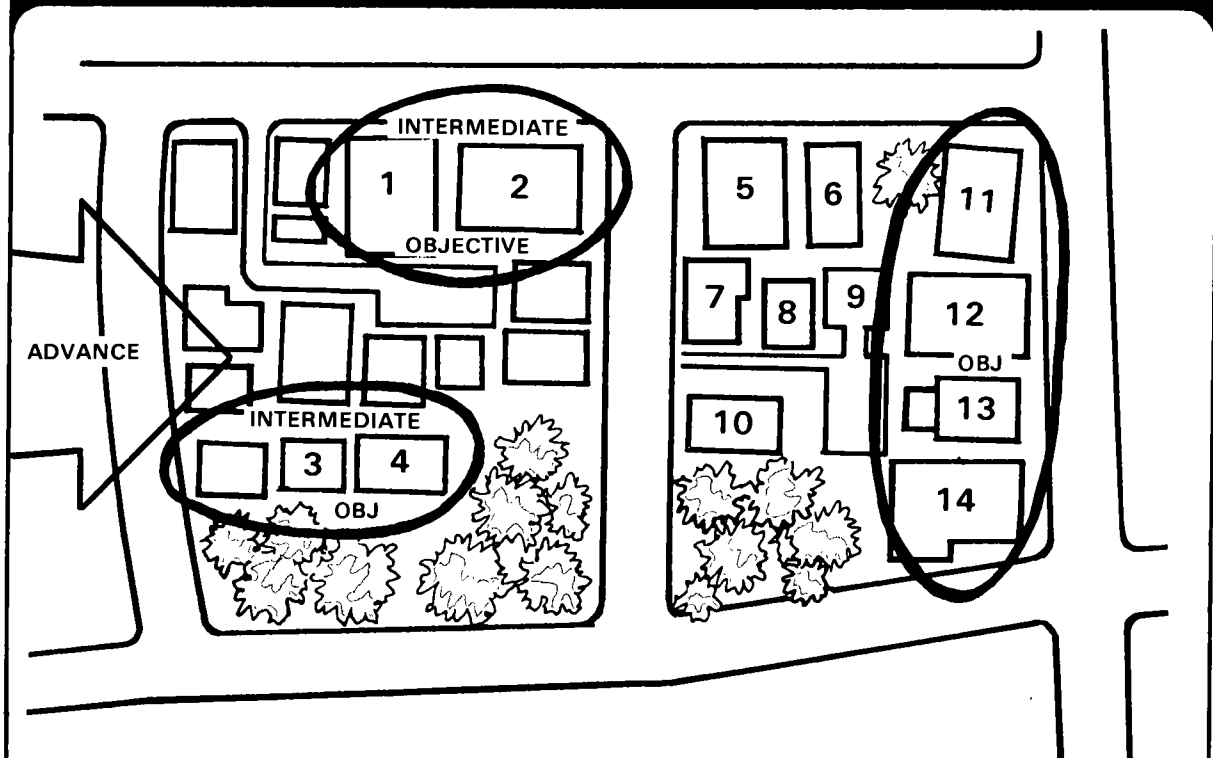
In an attack on a large urban area, a battalion would probably participate as part of an attacking brigade. In that case, the battalion may have to isolate the objective or seize a foothold. If the objective is a smaller urban area, a battalion or a company may accomplish the entire mission independently,

assigning subordinate tasks to its companies or platoons. In either case, the maneuver platoons will accomplish their entry and clearance missions as explained in appendix F.

OBJECTIVES

When attacking to seize a foothold, the battalion normally assigns a forward company the first block of buildings as its first objective. When an objective extends to a street, only the near side of the street is included. The companies' final objectives may be buildings at the far edge of the urban area or key terrain on the far side. Key buildings or groups of buildings also may be assigned as intermediate objectives. Buildings along the route of attack should be identified by numbers to simplify assigning objectives and reporting.

CONTROL MEASURES AND EXAMPLE OF NUMBERING SYSTEM



When the unit is involved in clearing operations, bypassing of buildings increases the risk of attack from the rear or flank. Thus, the clearing unit must enter, search, and clear each building. A single building may be an objective for a rifle squad or, if the building is large, for a rifle platoon or even a company.

When a rapid advance has been ordered or when conducting a hasty attack, a battalion may be directed not to clear its entire zone.

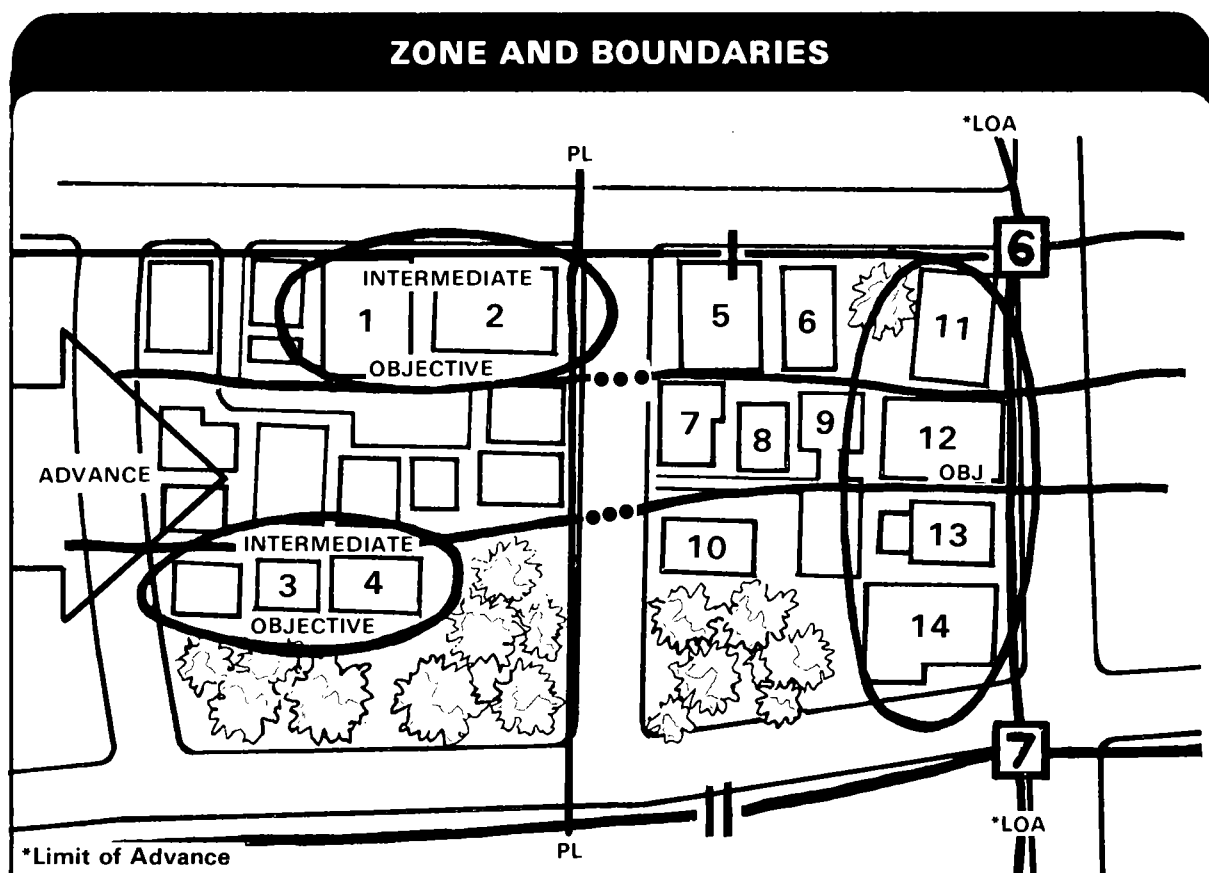
PHASELINES

As important control measures, phaselines can be used to report progress or

to control the advance of attacking units. Principal streets, rivers, and railroad lines are suitable phaselines. Phaselines should be on the near side of the street or open area. In systematic clearing, a unit may have the mission to clear its zone up to a phaseline. In that case, the unit commander would pick his own objectives when assigning missions to his units.

BOUNDARIES/ZONE OF ATTACK

Battalion and company boundaries are usually set within blocks so that a street is included in a company zone. Boundaries must be placed to insure that both sides of a street are included in the zone of one unit.



CHECKPOINTS AND CONTACT POINTS

These are planned at street corners, buildings, railway crossings, bridges, or any other easily identifiable features. Checkpoints aid in reporting locations and controlling movement. Contact points are used to designate specific points where units make physical contact.

ATTACK POSITION

This position may be occupied by forward units to make last-minute preparation and coordination. When feasible, troops enter and leave the attack position when visibility is poor to avoid being seen by the enemy.

FRONTAGES

A unit's assigned frontage for the attack of an urban area will depend on the size of buildings and the resistance anticipated. A company normally attacks on a one- to two-block front, and a battalion on a two- to four-block front, based on city blocks averaging 175 meters in width.

TIME OF ATTACK

The first phase of an attack should be conducted when visibility is poor, especially when open areas must be crossed. Troops should exploit poor visibility to cross open areas, to gain access to rooftops, to infiltrate enemy areas, and to gain a foothold. If the attack must be made when visibility is good, smoke should be used to conceal movement.

THE FORMATION

In an attack, the formation used depends on the width and depth of the zone to be cleared, the character of the area, enemy resistance, and the formation adopted by the next higher command. Normally, a battalion will have two companies forward.

THE RESERVE

The reserve should be mobile and prepared for commitment. The cover in urban areas allows it to keep close to the forward units.

Battalion reserves will normally follow one to two blocks to the rear of the lead company. If a company reserve is available, it will normally follow within the same block so that it can immediately influence the attack.

A unit with a "reserve" mission may have one or more of the following tasks:

- Attacking from another direction.
- Exploiting an enemy weakness or friendly success.
- Clearing bypassed enemy positions.
- Securing the rear or a flank.
- Maintaining contact with adjacent units.
- Reinforcing a forward unit by fire.

THE SCOUT PLATOON

Normally, this platoon is employed to screen the battalion's flanks and rear. Its capability for reconnaissance and security is somewhat reduced in urban terrain. The scouts can also help isolate a village or small town. Scouts must be prepared to dismount and go into buildings, either for reconnaissance or to set up observation posts (OP).

ENGINEERS

Forward companies may have engineers attached so that they can give immediate support. **Tasks given the engineers include:**

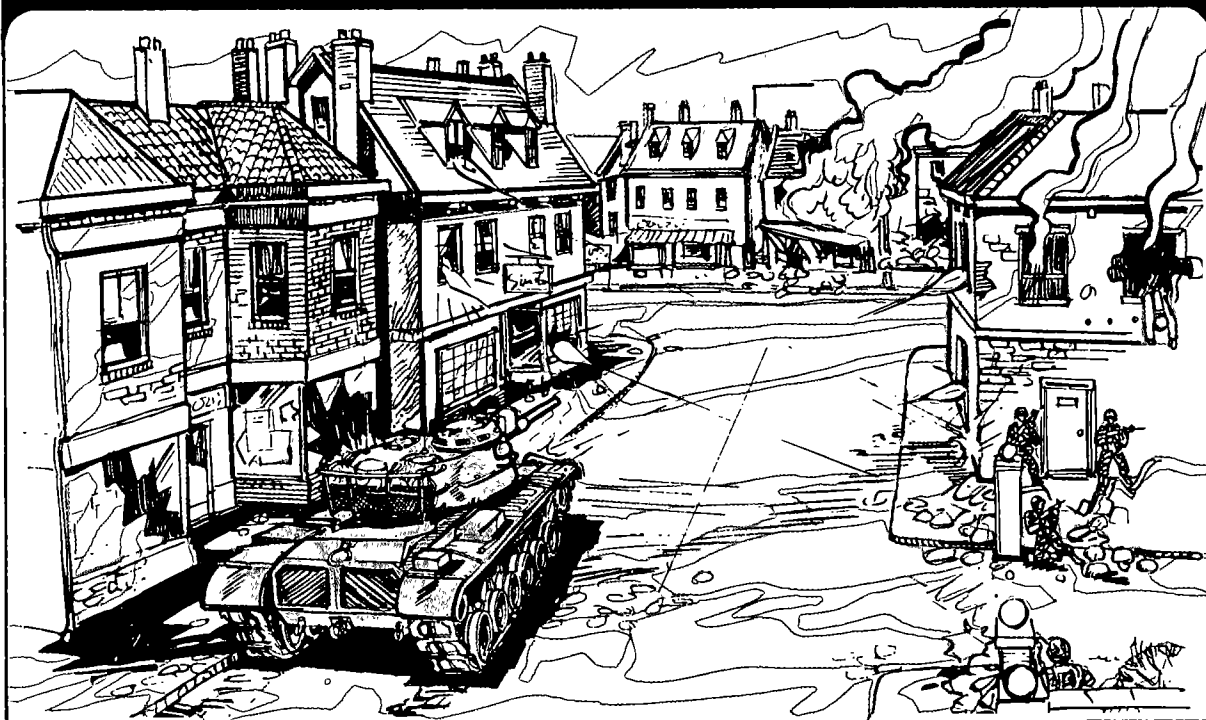
- Preparing and using explosives to breach walls and obstacles.
- Finding and helping to remove mines.
- Clearing barricades and rubble to ease movement.

Combat engineer vehicles (CEV) may be used to fire at enemy positions, to crater roads, or to clear rubble.

SECURITY

Security in an urban area presents special problems. All troops must be alert to an enemy that may appear from the flanks, from above, or from underground passages.

ENEMY FIRING FROM FLANK ABOVE



FIRE SUPPORT PLAN

Extensive air and artillery bombardment may precede the ground attack on an urban area. The attacker's supporting fire helps by suppressing the defender's fire, destroying his positions, and restricting his movement.

Use of tactical air support (TACAIR) and artillery in areas having heavy-clad construction will make rubble, which will

restrict the movements of attacking troops. For that reason, an artillery preparation should be short and violent, like "time on target" (TOT). Assaulting troops must follow the artillery fire closely to exploit its effect on the defenders.

Supporting fire during the foothold phase of an attack suppresses the enemy while the maneuver units move to their

objectives. Because indirect fire is less effective in urban areas, attackers use tanks,

CEVs, or direct-firing artillery pieces to provide fire support.

155-MM HOWITZER IN DIRECT FIRE ROLE



CEV IN DIRECT FIRE ROLE



TANK IN DIRECT FIRE ROLE



EMPLOYMENT OF FIREPOWER

ARTILLERY

Employed in its normal role of support to the maneuver units, artillery furnishes indirect and direct fire as appropriate. Indirect artillery fire is planned to isolate objectives, prevent reinforcement and resupply, neutralize known and suspected command and observation posts, and suppress enemy defenders. Large-caliber artillery rounds, shot by direct fire, are good for destroying targets in buildings. If available, self-propelled 155-mm howitzers can use direct fire to destroy or neutralize bunkers, heavy fortifications, or enemy positions in reinforced concrete buildings. Artillery guns must be secured by infantry in the same way as tanks.

MORTARS

The most responsive indirect fire to hit targets of opportunity at the close ranges typical of urban combat is furnished by mortars. Forward observers move with the forward units to adjust fire on targets as requested by the supported troops.

ANTITANK WEAPONS

These weapons are employed at first to support the seizure of a foothold. Then, if necessary, they are brought forward to fight enemy armor within the town. Antitank weapons positioned in buildings must have space enough for backblasts (*app I*).

USE OF COMBAT SERVICE SUPPORT

As large expenditures of ammunition are common when attacking in an urban area, forward resupply points are set up to help retain momentum. Commanders should plan for early resupply of explosives, grenades, flame fuel, and small-arms and tank ammunition. Mobile distribution points may be set up as low as company level. Armored personnel carriers and handcarrying parties may be used to resupply the forward units. Resupply by helicopter (*prepackaged slingloads*) may be feasible.

The battalion should arrange for special equipment, such as flamethrowers and toggle ropes with grappling hooks. Having such equipment on hand early will allow its use in rehearsals.

The evacuation of wounded from rooftops and upper stories of buildings may require additional litter bearers, or the use of special evacuation equipment. Rubble may keep ambulances out of some areas. Plans should provide for the marking of buildings which contain wounded troops. Where possible, provisions should be made to evacuate the wounded by helicopter from the tops of buildings.

Many of these considerations will be covered in unit SOPs.

EMPLOYMENT OF FIRE SUPPORT

EMPLOYMENT OF TANKS WITH INFANTRY

Tanks may support by fire when lead units are seizing a foothold. During the attack of a built-up area, tanks overwatch the infantry's initial assault until an entry into the area has been secured. Tanks must be supported by infantry organic weapons to suppress enemy strongpoints and ATGMs while they move into overwatch positions. The commander must employ tanks to take advantage of the long range of their main armament. In many cases, this can best be achieved with tanks employed outside the built-up area. Tank elements may remain outside the built-up area for the duration of the attack to cover high-speed armor avenues of approach. This is especially true during the isolation phase.

In house-to-house and street fighting, tanks move down the streets, protected by the infantry, and in turn support the infantry by

firing their main guns and machineguns into enemy positions or OPs. The tank is the most effective weapon for heavy fire against structures. Tanks with dozer blades can be used to clear rubble.

Tanks are, however, vulnerable in urban areas. Streets and alleys constitute readymade fire lanes for defenders. Motorized traffic is greatly restricted, canalized, and vulnerable to ambush and close-range fire. Tanks are at a further disadvantage because their main guns cannot be depressed sufficiently to fire into the basements or elevated to fire into upper floors of buildings at close range.

In movement down narrow streets or wider streets with narrow paths through the debris, dismounted infantry should move ahead of the tanks, clearing the buildings on each side. When needed, the tanks move up to places secured by the infantry to hit suitable targets. When that area is cleared, the infantry again moves forward to clear the next area. Due to the restricted movement and the limited observation of buttoned-up tanks, the infantry must clear the route in advance of the tanks. The tanks and infantry should use the **traveling overwatch** movement technique. Infantrymen can communicate with the tank crews by using arm-and-hand signals, radio, and the external telephone of the tank.

For movement down wider streets, infantry platoons normally have a section of attached tanks with one tank on each side of the street. Other tanks of the attached tank platoon should move behind the infantry and fire at targets in the upper stories of the buildings. In very wide boulevards, commanders may employ a tank platoon secured by one or more infantry platoons. Tanks should not be employed alone. The infantry can secure the forward movement of

the lead tanks, while the rearward tanks overwatch the movement of the lead units.

Some streets are too narrow for that type of tank support. If an infantry unit must travel these streets, it must use single tanks for support. Those tanks will move and shoot as described above.

A battalion may have a CEV or a number of artillery pieces attached. Those weapons should be used for direct fire in the same way as tanks. They should be carefully used against targets that other weapons cannot destroy. Great care should be taken to secure them by assigning an infantry squad or fire team to each vehicle for close-in security.

Where feasible, tanks may drive inside buildings or behind walls for protection from enemy antitank missile fire. Buildings should first be cleared by the infantry and checked to see that the ground floor will support the tank, or that there is no basement into which the tank could fall and become trapped. When moving, all bridges and overpasses should be checked for mines and boobytraps and for load capacity. Specific infantry elements should be assigned to protect specific tanks.

CONDUCT OF THE HASTY ATTACK

FINDING AN ENEMY WEAK POINT

In a movement to contact near an urban area, a battalion commander may have his lead unit reconnoiter to find a weak point. The lead unit should reconnoiter aggressively and, on finding a weak point, either make contact and fix the enemy or seize the area to secure it for the following units. Only those buildings necessary to provide security for the attack are cleared.

MOVEMENT THROUGH THE WEAK POINT

Once the lead unit is engaged, the battalion commander will order the rest of his unit to pass through. The lead unit must maintain contact with the enemy and help the rest of the battalion pass through. Depending on the degree of resistance, the battalion commander may order the lead unit to attack, or order it to fix the enemy while another unit leads the rest of the battalion through the weak point. As each unit enters the urban area, it is responsible for its own security, but clears only those parts of the area essential for its maneuver. Units may be assigned objectives within the area that must be seized quickly.

If a key feature is captured, it should be secured quickly. If an opportunity arises to continue the attack, clearing buildings will usually be left for following units.

CONDUCT OF THE DELIBERATE ATTACK

In a deliberate attack on an urban area, the area is first isolated, then a foothold is seized, and finally the area is cleared.

ISOLATING AN URBAN AREA

Isolation is achieved by seizing dominant terrain from which the attackers can control approaches into and out of the urban area. Tank-heavy elements supported by ATGMs, mortars, and artillery are employed using the dominant terrain to isolate the built-up area from reinforcement and resupply.

SEIZING A FOOTHOLD

When the area has been isolated, the attacker next seizes a foothold, preferably from an unexpected direction and when visibility is poor. The attacker uses smoke and direct and indirect fire weapons to suppress the defender's ground observation

USE ARTILLERY AND MORTAR FIRE

and direct fire on the approaches into the urban area. The lead unit advances to the edge of the urban area and seizes structures from which it can continue the attack. Artillery and mortar fire is used to cover the advance of the attacking units and to suppress enemy weapons. Supporting weapons may be used to blow gaps through barbed-wire obstacles. Smoke may be used to screen friendly troop movement. The attacking unit may use the foothold as a place to reorganize and displace weapons to positions where they can support the continuation of the attack. Supporting weapons may also have to help protect the foothold area from counterattack.

CLEARING OF THE URBAN AREA

After isolation and seizure of a foothold, the attacking force may clear the urban area with a systematic block-by-block, house-to-house reduction, or by moving quickly through the town while clearing specified critical areas and key buildings. The number of buildings to be cleared depends on the mission, the size of the town, the construction and arrangement of the buildings, the enemy disposition and strength, and the size and composition of the attacking force.

DIVIDE AREA INTO COMPANY ZONES

When the urban area is large and heavily fortified, or when the mission requires complete clearing out of enemy troops, the area should be divided into company zones of attack. This can result in heavy fighting as each zone is systematically searched and cleared—house by house, block by block. Each company must clear its zone completely, leaving no enemy in its rear. This helps protect them from surprise attacks on their rear, secure their lines of communications, and keep support and reserve units from becoming involved in unexpected enemy action.

When the urban area is small or lightly defended, when the plan calls for a rapid advance into the area to seize a critical feature, or when a part of the area must be isolated, reserves and following units may be ordered to clear sections of the area which have been bypassed or only hastily cleared by the leading units. Close coordination between forward and following units is essential to prevent combat between friendly elements.

As each forward unit seizes an objective, it consolidates and reorganizes before continuing toward its next objective.

COMMON OFFENSIVE OPERATIONS IN URBAN AREAS

BATTALION LEVEL

Although the following examples describe the actions of a mechanized infantry battalion task force, all of these

actions could be modified for use by any type of infantry unit.

Deliberate attack. Because the companies or company teams may become isolated during the operation, some support elements which are normally only in support are **attached** to them. As shown below, Team B and Company C, the forward units which will clear the village, each has a squad of engineers attached. The tanks will be used to hit hardened targets protected by buildings or rubble. They may also be used to blow an entry point in buildings when the normal entrances are covered by enemy fire. The CEV will be brought forward when necessary for similar tasks against tough buildings and to clear rubble.

The objective area sits astride a major road and must be seized so that friendly forces can use the road to continue the attack. It is dominated by high ground on either side. It, and the surrounding terrain, is defended by enemy motorized rifle troops in platoon strongpoints.

The task force (TF) is organized as shown.

<u>TEAM A</u>	<u>TEAM B</u>	<u>COMPANY C</u>
A/1-72 MECH (-)	B/1-72 MECH (-)	C/1-72 MECH
3/A/1-1 ARMOR	2/A/1-1 ARMOR	1 AT SEC
1 AT SEC	1 AT SEC	1 REDEYE TM
1 REDEYE TM	1 REDEYE TM	3/2/A/14 ENGR
	2/2/A/14 ENGR	
<u>TEAM CLAW</u>	<u>TF CONTROL</u>	
A/1-1 ARMOR (-)	SCOUTS	
3/A/1-72 MECH (-)	HVY MORT PLT	
3/B/1-72 MECH (-)	AT PLT (-)	
2 AT SEC	REDEYE SEC (-)	
1 REDEYE TM	2/A/14 ENGR (-)	
	CEV	

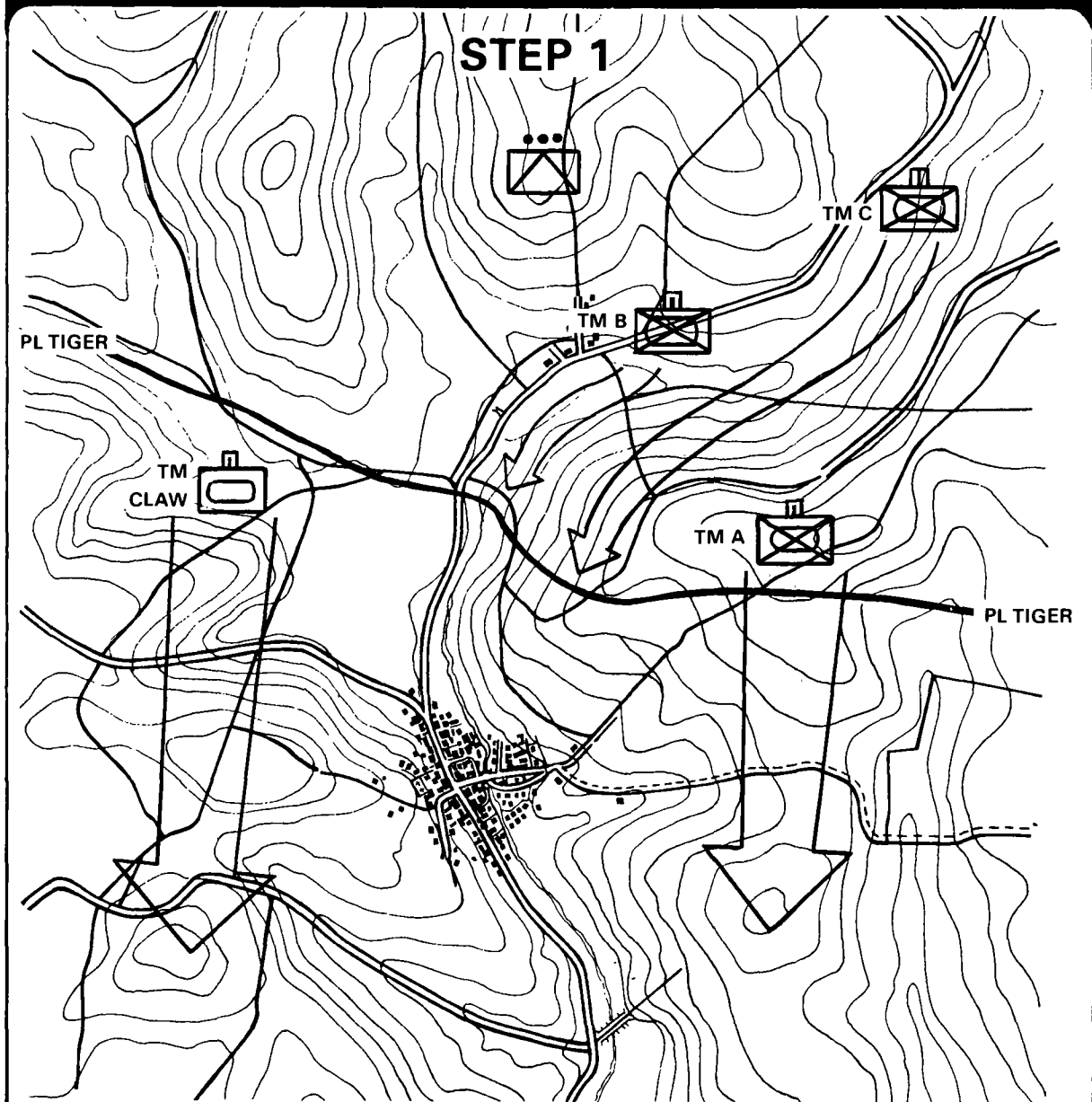
The TF commander plans to conduct a deliberate attack of the village. The steps in the attack will include:

- isolating the village,
- seizing a foothold, and

- clearing the buildings.

To isolate the village, the TF commander orders Team A and Team CLAW to seize the high ground on either side of the village (Step 1).

ISOLATION OF THE VILLAGE

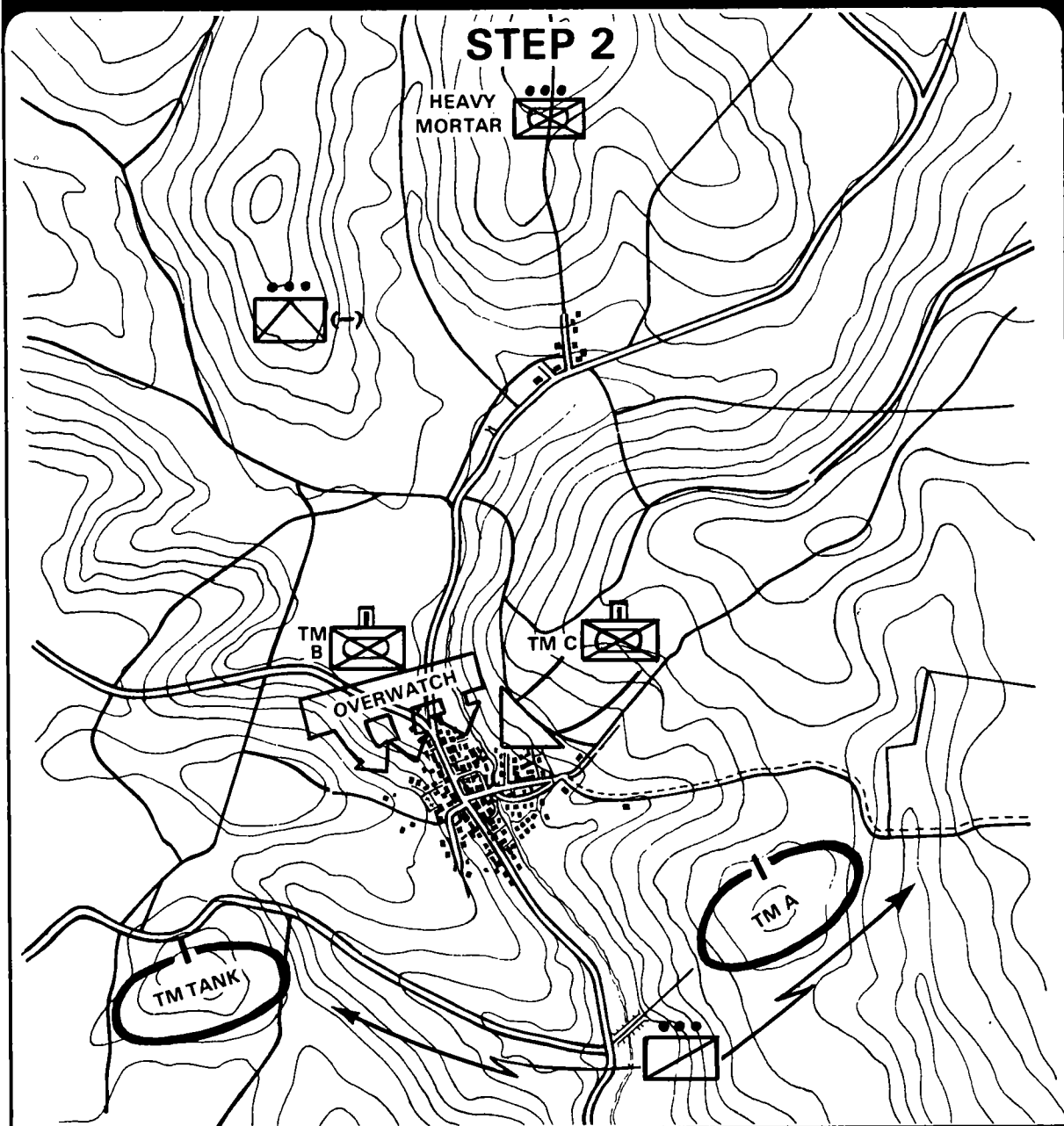


The scout platoon helps isolate the village by screening between the two forward teams.

With Team B and the antitank (AT)

platoon (-) overwatching, Company C attacks to seize the foothold (**Step 2**). The TF mortars and supporting artillery fire smoke to conceal Company C's approach.

COMPANY C ATTACKS TO SEIZE A FOOTHOLD

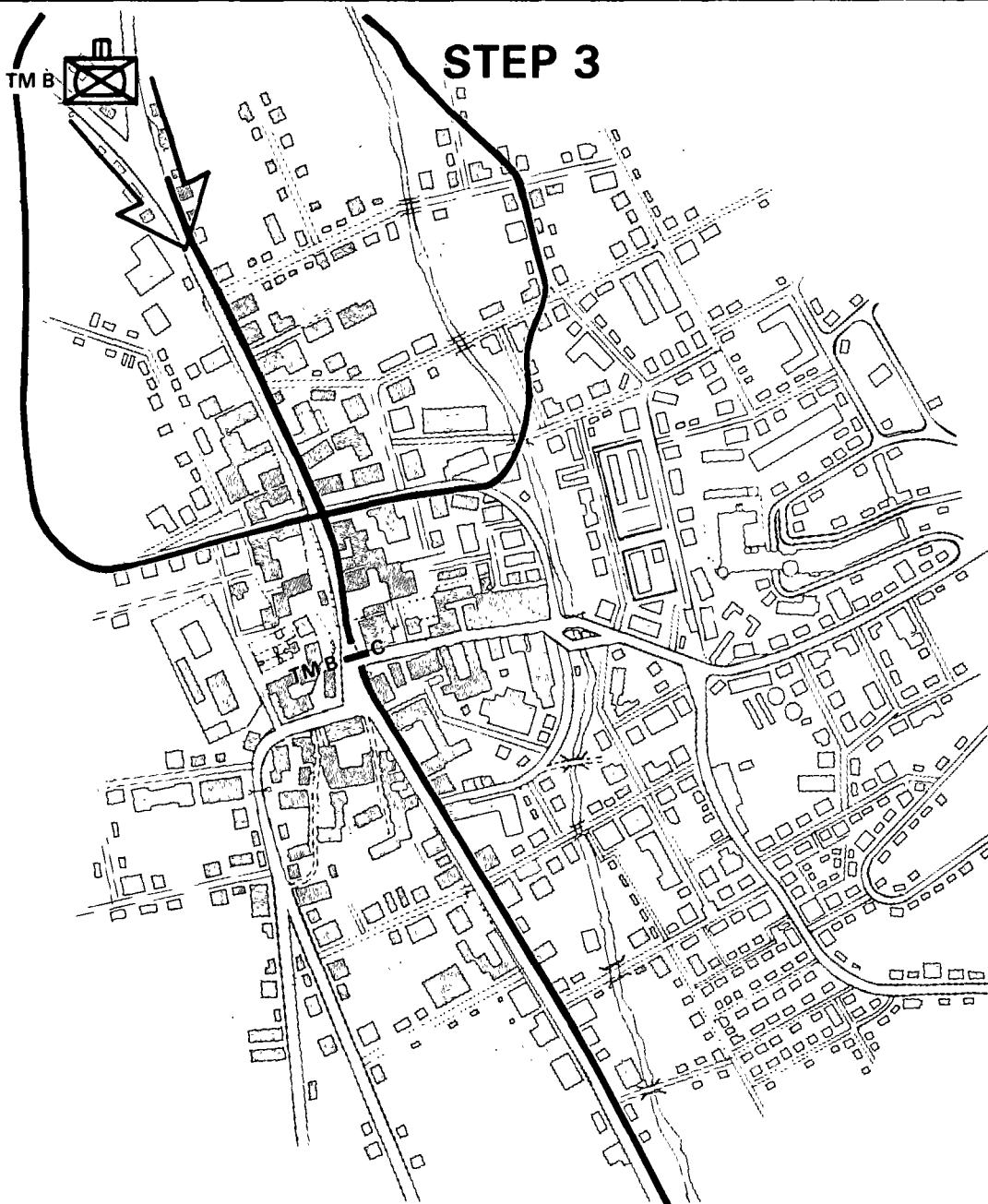


When they have secured the foothold, Team B moves forward to join Company C in the foothold. The AT platoon (-) continues to overwatch.

The village is divided into two company zones. Each company clears its designated zone, building by building (Step 3).

CLEARING ZONES

STEP 3

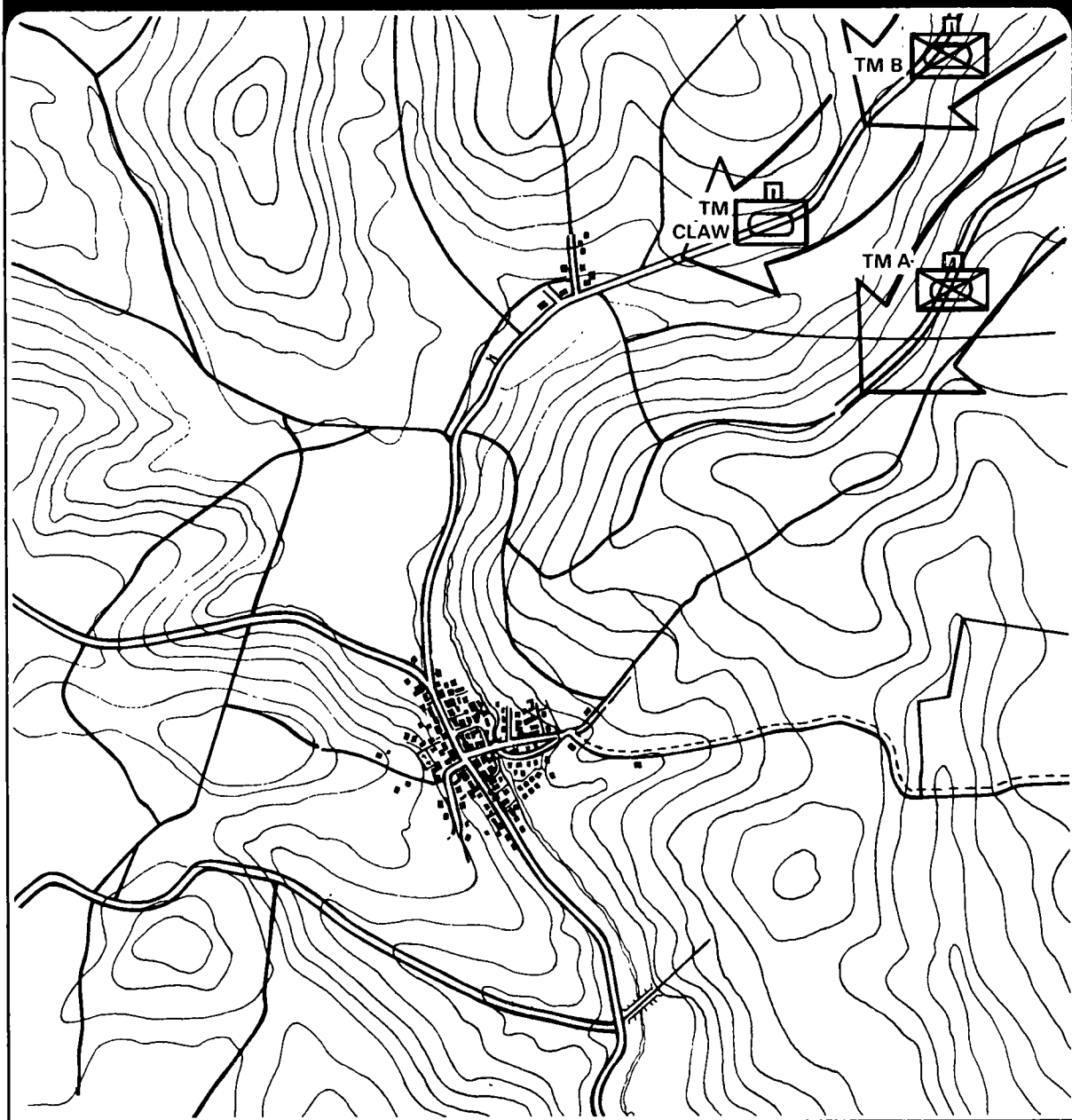


This is just one typical mission that a battalion could be required to accomplish. Some other missions are the following:

Hasty attack against an outpost in an urban area. A TF in a movement to contact

may encounter an outpost in a small group of buildings. This situation does not call for a deliberate attack on the built-up area, but the outpost should be eliminated so that the following units may move along the route.

MOVEMENT FORMATION

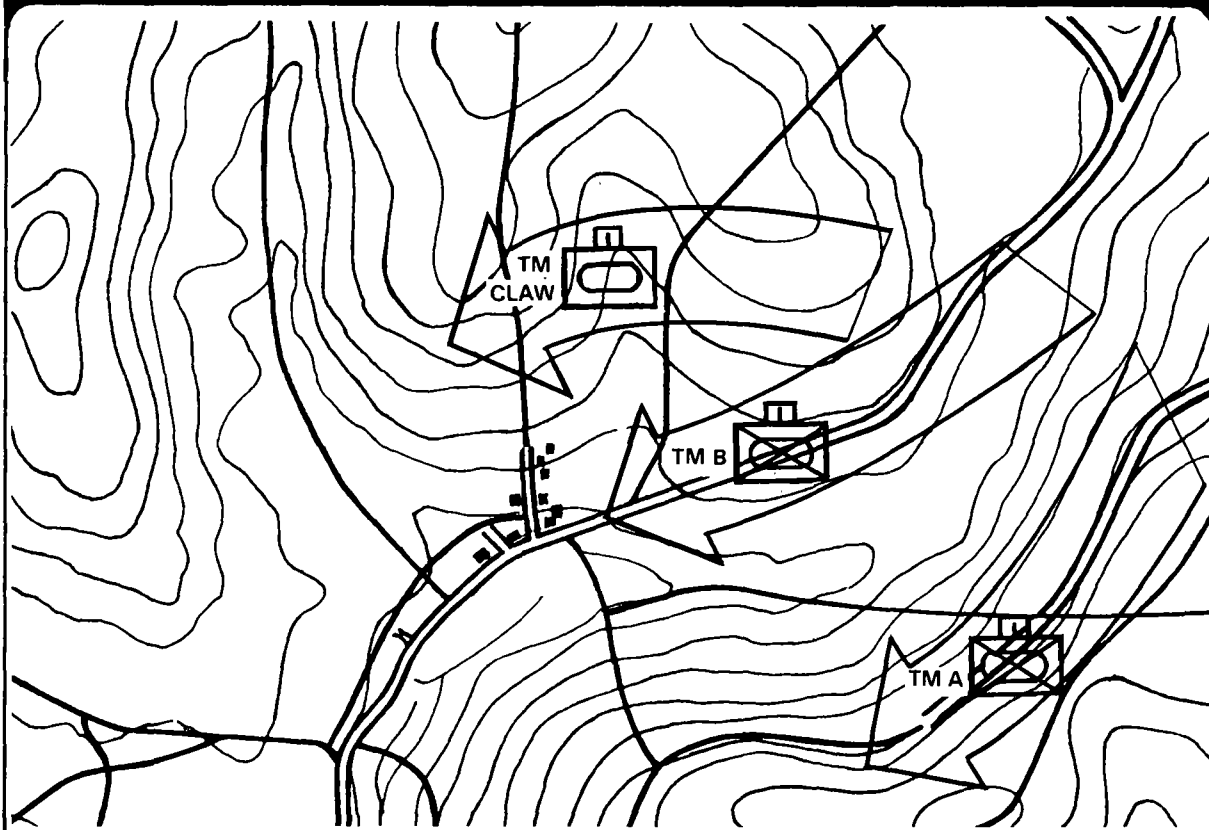


The TF commander must maintain the momentum of his TF and commit only enough combat power to neutralize the outpost. He orders the lead team (Team CLAW) on the west axis to bypass the village and continue moving. Likewise, Team A on the other axis continues its movement. Team B, the trailing team on the west axis, is ordered

to clear the village and then catch up with the rest of the TF.

The team ordered to clear the outpost should have priority of fire. It may have additional TOWs attached from the AT platoon to help isolate and neutralize the outpost.

HASTY ATTACK TO CLEAR A BUILT-UP OUTPOST



The seizure of a key objective. Many urban areas are built around key features, such as road junctions or bridges. In this example, the key feature is a bridge over a river. A normal deliberate attack would not succeed here because it would give the enemy enough time to destroy the bridge. Instead, the commander must plan a rapid advance through the urban area, leaving the task of clearing to following units.

This type of operation has the highest chance of success when the enemy has not had time to set up a well-established defense. Because of the importance of the objective, the prime considerations are to get through the area fast, before the enemy can react, and to seize the objective while it is still intact.

The TF should attempt to avoid contact with the enemy. If enemy resistance is

encountered, it should be bypassed. Time-consuming combat must be avoided. The TF must get to the bridge any way possible.

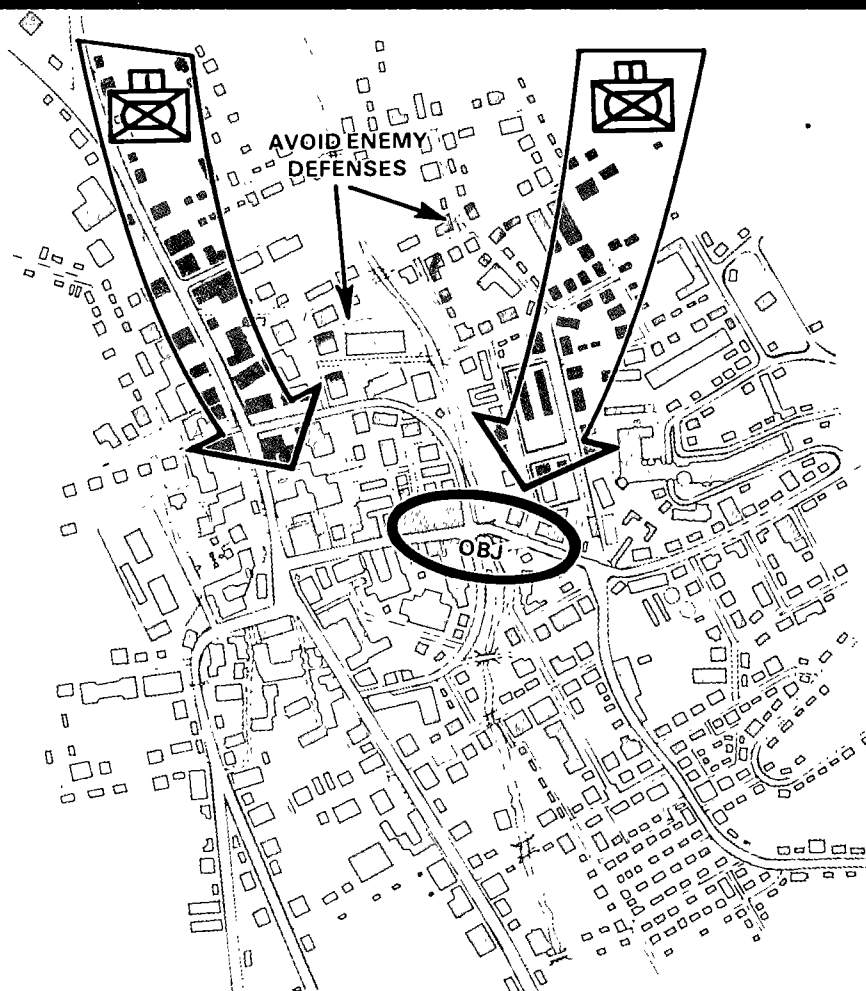
In this case, the TF commander organizes his TF as for movement on two axes. This allows him more flexibility to react to enemy contact. The lead unit on each axis reconnoiters as it moves. Lead units must find enemy positions, fix them by fire, and quickly bypass them.

The units move mounted toward the urban area. On reaching the edge of the

urban area, troops stay mounted until they meet enemy resistance. Enemy contact, if made, should not slow the advance. Platoons are dropped off as necessary to take up blocking positions and secure the TF advance.

Once the objective is seized, the TF establishes a perimeter defense. The companies clear buildings and expand the size of the perimeter until it is large enough to secure the bridge against enemy action. Attached engineers check the bridge and clear it of any explosives.

SEIZURE OF A KEY OBJECTIVE



Infiltration into the outskirts of a town.

This example describes the actions of an infantry battalion with engineers attached. With some modification, it could also apply to a dismounted mechanized infantry battalion.

DEFENSES MAY BE WEAK

The outskirts of a town may not be strongly defended. Its defenders may have only a series of antitank positions, security elements on the principal approach, or positions blocking the approaches to key features in the town. The strongpoints and reserves are deeper in the city.

It may be possible for a battalion to seize a part of the town by infiltrating platoons and companies between those enemy positions on the outskirts. Moving by stealth on secondary streets, using the cover and concealment of back alleys and buildings, the battalion may be able to seize key street junctions or terrain features, isolate enemy positions, and help following units pass into the urban area.

**POOR VISIBILITY AIDS
INFILTRATION**

Such an infiltration should be done when visibility is poor. It will have a better chance of success if there are no civilians in the area.

The battalion is best organized into two infiltration companies with engineers attached to each and a reserve company with engineers attached. Each company should have an infiltration lane from 300 to 800 meters wide.

The infiltrating companies advance on foot, with stealth, using available cover and concealment. Mortar and artillery fire can be used to divert the enemy's attention and cover the sound of infiltrating troops.

The TOWs take up positions from which they can fire on any enemy tanks or armored personnel carriers. The scouts screen the battalion's more vulnerable flank.

As the companies move into the built-up area, they secure their own flanks. Security

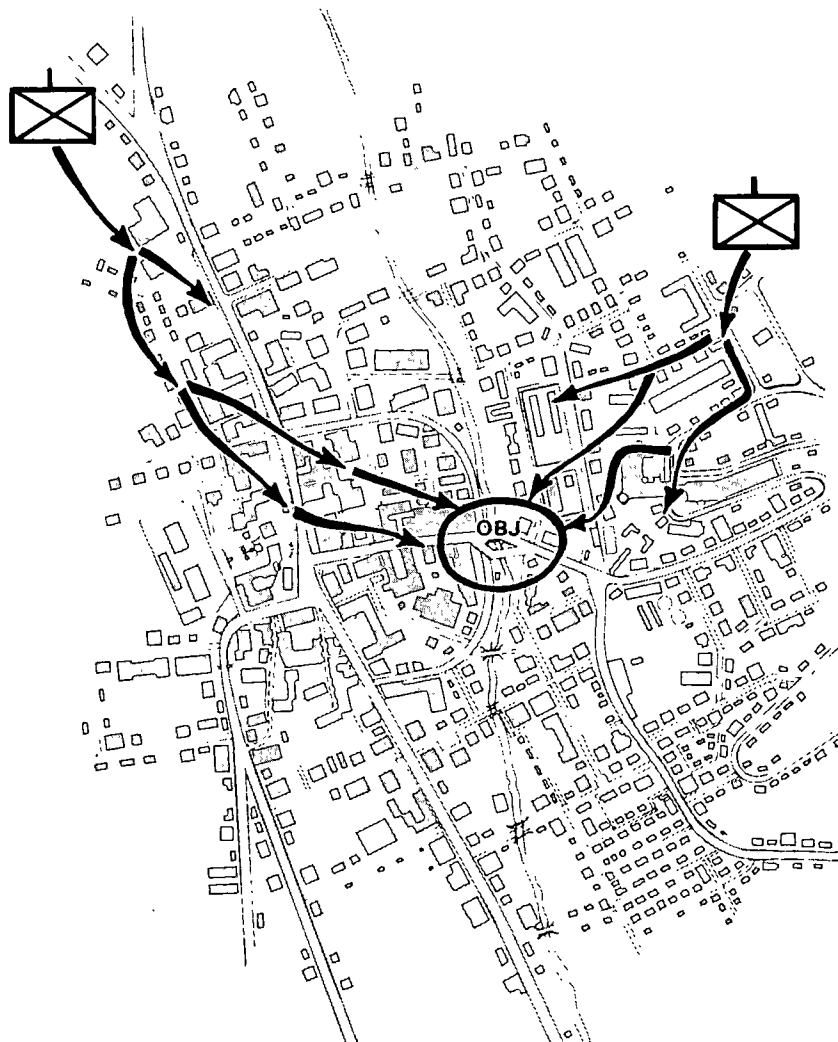
elements may be dropped off along the route to warn of an attack on a flank. Engineers assist in breaching or bypassing minefields or obstacles encountered. Enemy positions are avoided, but reported.

The infiltrating companies proceed until they reach their objective. At that time, they consolidate and reorganize, contact each other, and arrange for mutual support. They patrol to their front and to the flanks and establish contact with each other. The

company commander may establish a limit of advance to reduce chances of enemy contact or to insure safety from friendly forces.

If the infiltration places the enemy in an untenable position and he has to withdraw, the rest of the battalion is brought forward for the next phase of the operation. If the enemy does not withdraw, the battalion will have to clear him out before the next phase of the operation.

INFILTRATION



Securing a route in a built-up area. A mechanized infantry battalion may have to clear buildings along a route through a city to secure the route.

How quickly the battalion can clear the buildings depends on the enemy resistance and the size and number of buildings. In the outlying area, the forward units proceed by bounds from road junction to road junction. Other platoons provide flank security by moving down parallel streets and by probing to the flanks.

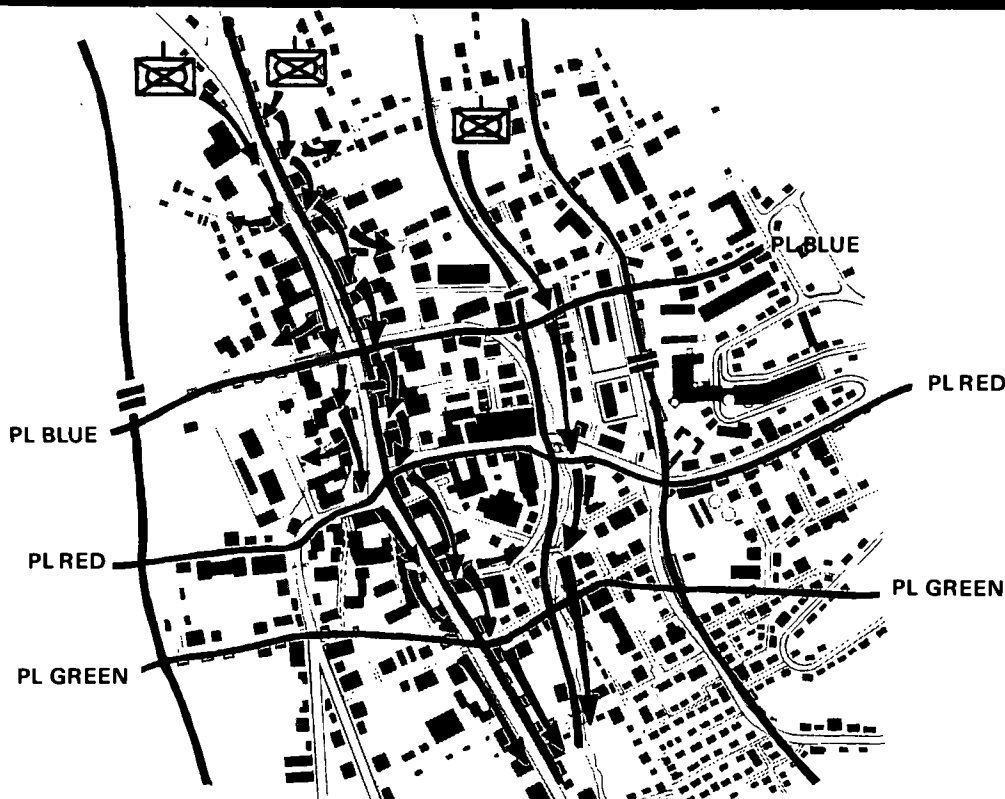
Depending on the required speed and the enemy situation, the infantry may either move mounted or dismounted. The platoons move down the widest streets, avoiding the narrow streets. Each squad overwatches the

squad to its front, keeping watch on the opposite side of the street. The overwatching carrier teams are secured by dismounted troops. Except for those troops, the rest of the infantry may stay mounted, until required to dismount by enemy fire or to attack an enemy-held building.

When contact with the enemy is made, the tanks support as usual. Supporting fire fixes and isolates enemy positions. The dismounted troops maneuver to attack those positions.

Phaselines can be used to control the rate of the companies' advance and other action. For example, at each phaseline, the forward companies might reestablish contact, reorganize as necessary, and then continue the clearing action.

CLEARING ALONG A ROUTE



COMPANY LEVEL

The following are examples of missions that might be assigned to a company. These may be independent missions but are normally part of a battalion mission.

Attack of a block in an urban area. For this mission, a company should be reinforced with tanks and engineers. The mission can be accomplished either by an infantry unit or by a dismounted mechanized infantry unit using its carrier-mounted machineguns for fire support.

This operation is characterized by platoon attacks supported by both direct and indirect fire. Success depends on:

- Isolating the enemy positions. (These often become platoon objectives.)
- Suppressing enemy weapons.
- Seizing a foothold in the block.
- Clearing the block building by building, room by room.

Task organization of the company will vary, depending upon the nature of the built-up area. For example, an infantry company fighting in the outskirts of a city might organize as follows:

- Two rifle platoons, each with engineers attached—to assault.
- One rifle platoon—reserve.
- One tank platoon—in support of the assaulting rifle platoons.

In a core or core periphery area, that same company might be organized as follows:

- Two rifle platoons—each with engineers and tanks under each platoon leader's operational control (OPCON)—to assault. (The engineers and tanks are placed under each platoon leader's OPCON due to the independent, isolated combat that can be expected in those areas.)
- One platoon—in reserve.
- All available direct and indirect fire weapons should be used to isolate objective buildings. Direct fire down streets and indirect fire in open areas between buildings helps in the isolation of the objective.

Tanks, machineguns, and other direct fire supporting weapons fire on the objective from covered positions. These weapons should not be fired for prolonged periods of time from one position. The gunners should use a series of positions, displacing from one to another for better fields of fire and to avoid being targeted by the enemy. Direct fire support tasks are assigned as follows:

- Machineguns fire along streets and into windows, doors, etc.
- TOWs and Dragons fire at enemy tanks and other armored vehicles.
- Tanks fire at targets protected by walls and make entrances in buildings.
- Riflemen engage targets of opportunity.

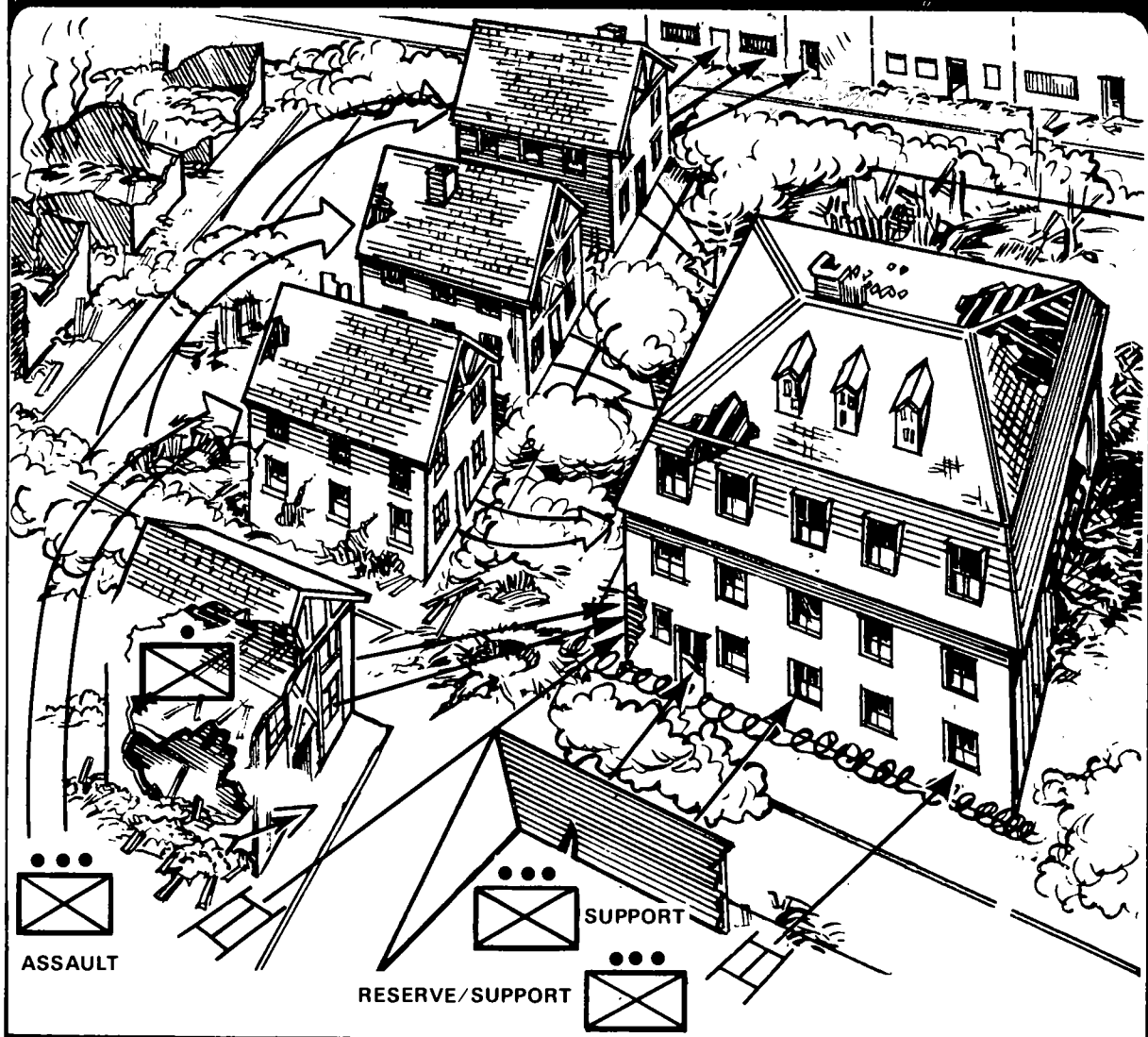
Before an assault, the company commander should employ smoke to conceal the assaulting platoons. He should secure their flanks with direct fire weapons firing down nearby streets and by employment of the reserve, if necessary.

Concealed by smoke and supported by direct fire weapons, an assaulting platoon attacks the first isolated building. The platoon must close on the building quickly

while the enemy is still stunned by supporting fire. The company commander must closely coordinate the assault with its supporting fire so that the fire is shifted at the last possible moment.

The squads and platoons clear each building, as described in appendix F. After seizing the block, the company consolidates and reorganizes to repel a counterattack or to continue the attack.

COMPANY ATTACK OF AN URBAN STRONGPOINT



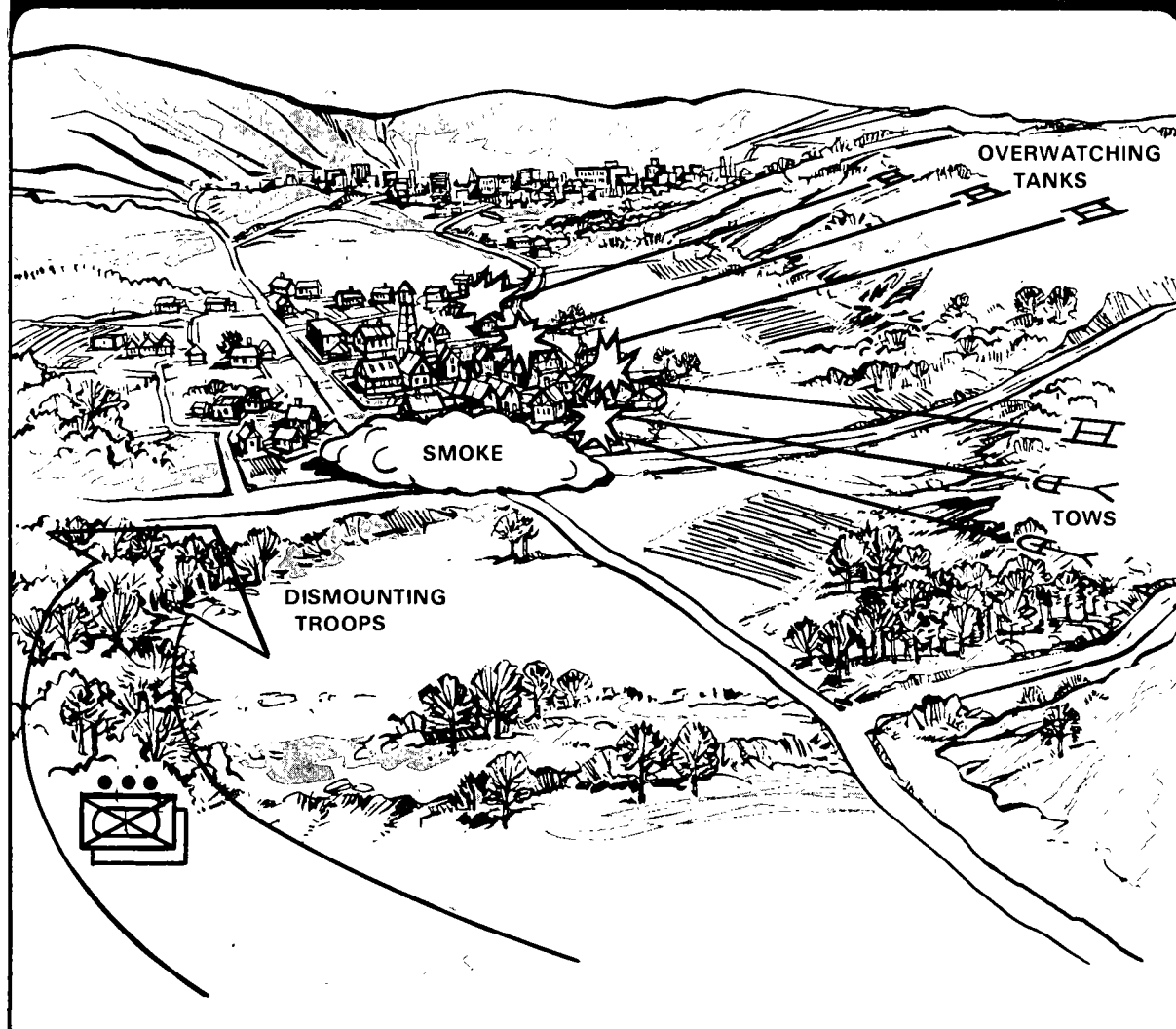
Hasty attack against an outpost in an urban area. Earlier, this chapter discussed the actions of a task force when it encountered an enemy outpost. This example discusses the actions of the **company team** ordered to make the hasty attack.

In this case, the company team commander uses a form of fire and maneuver. His tanks and TOWs take up overwatch positions from which they can fire

on the outpost, keep the enemy from escaping, and destroy any reinforcements.

The team's rifle platoons then move into the village. They do not attack head on, but from a covered route so as to hit the outpost at a vulnerable point. As the platoons approach the outpost, smoke screens their movement, and supporting fire is shifted. Once the platoons close on the outpost, they clear the buildings quickly and consolidate. The company is then ready for its next mission.

HASTY ATTACK OF AN OUTPOST



GATHER ALL AVAILABLE INTELLIGENCE

The seizure of a traffic circle. A company may have to seize a traffic circle either to secure it for friendly use or to deny it to the enemy. This operation consists of seizing and clearing the buildings which control the traffic circle, bringing direct fire weapons into position to cover the traffic circle itself, and either clearing the routes of mines and obstacles so that they can be used by friendly traffic or laying mines to deny them to the enemy.

After gathering all available intelligence on the terrain, enemy, and population, **the commander plans for the following steps:**

- Isolate the objectives.
- Seize and clear the buildings along the traffic circle, under cover of tanks, ATGMs, and machineguns.
- Consolidate and prepare for counterattack.

CONTROL THE TRAFFIC CIRCLE

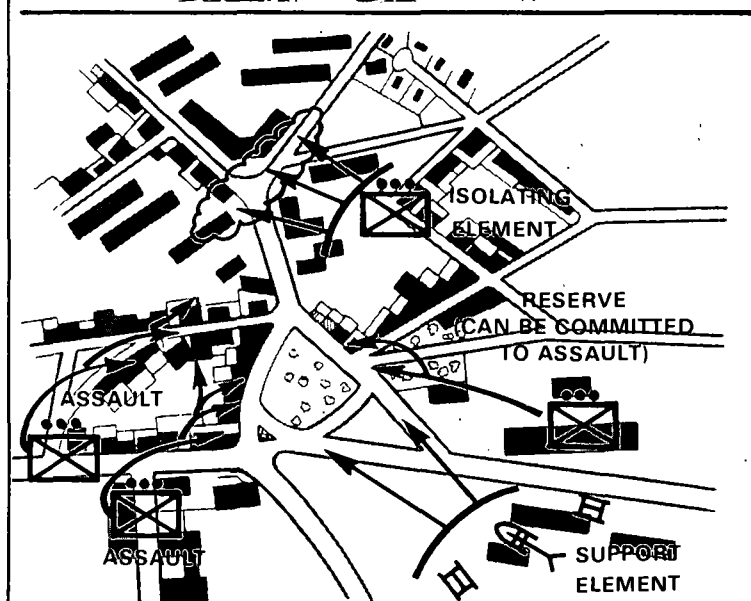
Friendly troops should not venture into the traffic circle until it is under friendly control. A traffic circle is a natural kill zone.

The company should be organized as:

- An isolating element (*charged with isolating the traffic circle and neutralizing enemy troops defending it*)—one rifle platoon with engineers.
- An assault element—two rifle platoons reinforced with engineers.
- Suppressing and obscuring enemy gunners within the objective building(s) and adjacent structures.
- A reserve—one rifle platoon. (*Placed under OPCON of the company for the operation.*)

At various stages in this operation, those roles may change. For example, the assault element may clear buildings until the support element can no longer support it. Then the reserve can be committed to the assault. It may also happen that one of the assault platoons is in a better position to isolate the traffic circle. At that time, the isolating platoon would become an assault platoon.

SEIZURE OF A TRAFFIC CIRCLE



THE COMPANY
ORGANIZED AS
ELEMENTS.

SEIZE THE BRIDGE INTACT

The seizure of a bridge. A bridge or overpass which spans a canal, highway, or railroad is an example of key terrain in a city. Therefore, seizing such a crossing point intact and securing it for friendly use is a likely mission for a rifle company. For this mission, a rifle company should—

- clear the buildings on the near bank that permit a clear view of the bridge and provide good fields of fire for supporting weapons;
- quickly suppress enemy weapons on the far bank with direct fire and smoke;
- seize a bridgehead (*buildings that dominate the bridge*) on the far bank by an assault across the bridge; and
- secure a perimeter around the bridge so that the engineers can clear any obstacles and remove demolitions from the bridge.

CLEAR NEAR BANK FIRST

The first step in seizing a bridge is to clear the buildings on the near bank. The commander must find out which of those buildings dominate the approaches to the bridge, and which permit him to employ LAWs, Dragons, machineguns, and riflemen. Those buildings are cleared, while supporting fire keeps the enemy from reinforcing his troops on the far bank and keeps enemy demolition parties away from the bridge.

SUPPRESS ENEMY ON FAR BANK

In suppressing the enemy's positions on the far bank, priority is given to those positions from which the enemy can fire directly down the bridge. Tanks and machineguns are very effective in this role. TOWs, Dragons, and, in some cases, LAWs can be used against enemy tanks covering the bridge.

The objectives of the assaulting platoons are the buildings that dominate the approaches to the bridge. One or two platoons assault across the bridge using all available cover and under the concealment of smoke. They are supported by the rest of the company and attached tanks. Once on the far side, they call for the shift of supporting fire and start clearing buildings. When the first buildings are cleared, supporting fire is

shifted again and the assault continues until all the buildings in the objective area are cleared.

At this point, the engineers clear the bridge and its approaches of all mines, demolitions, and obstacles. The company commander may expand his perimeter to prepare for counterattack. Once the bridge is cleared, the tanks and other support vehicles cross to the far bank.

SEIZURE OF A BRIDGE



**BUILDINGS THAT
DOMINATE APPROACHES
ARE OBJECTIVES.**

A COMPANY MAY RECONNOITER THE ROUTE

Movement to contact on a highway through a city (commercial ribbon). In a fast-moving situation, a company may have a movement to contact through an urban area along a highway. Similarly, a company may have to reconnoiter such a route in preparation for a battalion task force attack. This type of mission is best accomplished by a mechanized infantry company with an attached tank platoon.

This operation is characterized by alternating periods of rapid movement to quickly cover distances and much slower movement for security. The speed of movement selected depends on the terrain and the enemy situation.

TANKS LEAD IN OPEN AREAS

In more open areas where rapid movement is possible, a tank section should lead. In closer terrain, the infantry should lead, overwatched by the tanks. Another mechanized rifle platoon and the other tank section should move on a parallel street. Artillery fire should be planned along the route. Engineers accompany the lead platoon on the main route to help clear obstacles and mines.

The team should seize the key points on the highway (*crossroads, bridges, overpasses, etc.*) by a combination of actions:

THE TEAM SEIZES KEY POINTS

- **Between key points, the team moves with the infantry mounted when contact is not likely.**
- **At key points, or when enemy contact is likely, the team moves dismounted to clear enemy positions or secure the key point. Tanks support the dismounted troops.**

In peripheral or strip areas, this advance should be on one axis, with the lead unit well forward and security elements checking side

streets as they are reached. In the city core, this operation is conducted as a coordinated movement on two or three axes for more flank security.

Enemy positions can be either destroyed by the team itself or, if the need for speed is great, bypassed and left to following units.

The units of the team must coordinate their action. The company commander reports all information collected to the battalion task force.

MOVEMENT TO CONTACT ALONG A HIGHWAY THROUGH A CITY (COMMERCIAL RIBBON)



PLATOON LEVEL

Platoons seldom perform independent operations in urban combat, but because of the type of combat to be expected, they can become isolated and seem to be alone.

Attack of a building. The most common platoon offensive mission in an urban area is the attack of a building. The platoon must kill the defenders and secure the building. The attack involves isolating the building to prevent the escape or reinforcement of its defenders (*normally coordinated at company level*); suppressing the defenders with tank, machinegun, and mortar fire; entering the building at the least-defended point or through a hole breached by tank fire; and clearing the building. To clear it, troops normally go quickly to the top floor and clear from the top down. There must be close coordination between the assault and support elements of the platoon, using radios, telephones, arm-and-hand signals, or pyrotechnics.

If a platoon is attacking a building independently, it should be organized with an assault element, a support element, and a security element to cover its flanks and rear. In addition to its own support element, the platoon can be supported by tanks, mortars, and other elements of the company.

If one platoon is attacking, supported by the rest of the company, security may be provided by the other rifle platoons.

The assault has three steps:

- Isolate the building.
- Enter the building.
- Clear the building methodically, room by room, floor by floor.

The clearing is done by the rifle squads, which pass successively through each other

(*leapfrogging*) as rooms and floors are secured.

Platoons that clear buildings should be reinforced with engineers to help with demolition.

For a discussion of clearing various types of buildings, see appendix F.

ATTACK OF A BUILDING



Movement down a street. When moving in urban areas, a platoon follows the same principles of movement as in other areas. However, some movement techniques must be modified to adjust to the urban environment.

This discussion focuses on the movement down the street of the lead platoon of a rifle company, either mechanized or nonmechanized.

The platoon members must be prepared to return fire immediately. They also must be alert for any signs of the enemy and report this information promptly.

The speed of movement depends on the type of urban operation, terrain, and degree of enemy resistance.

In outlying or lightly defended areas, a mechanized infantry platoon proceeds along the street mounted, but sends dismounted men forward to reconnoiter key points (*crossroads, bridges, etc.*).

In the center of an urban area or in situations when there is heavy fighting, the platoon moves on foot with two squads leading—one on each side of the road, using all cover. They move through the buildings, if feasible, to avoid exposure on the streets. The squads give each other mutual support.

Enemy action against the platoon might consist of:

- An ambush on the street.
- Enfilade fire down the streets.
- Sniper fire from rooftops.
- Artillery or mortar fire.

For protection from those dangers, the platoon should—

- move through buildings and along walls;
- use tanks for fire support and station men on the roofs or upper stories for overwatch; and
- search for defenders in all three dimensions.

The platoon should move in two elements:

- A maneuver element (one squad on narrow streets, two squads on wide streets), which moves forward, scouts danger areas,

DISMOUNTED MEN RECONNOITER KEY POINTS

THE PLATOON NEEDS PROTECTION

and closes with the enemy when necessary.

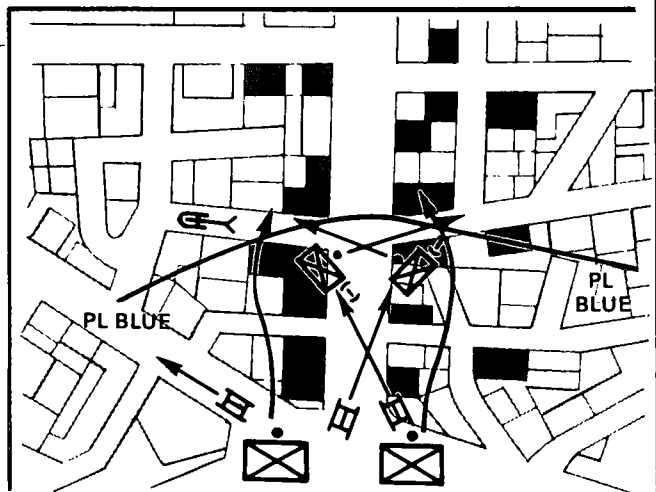
- An overwatch element (the rest of the platoon and its supporting weapons), which moves behind the lead element and secures the flanks and rear. It provides fire support as necessary.

At times, these two elements or parts of them will exchange roles.

MOVEMENT DOWN A STREET



OVERWATCH ELEMENT
MOVES BEHIND THE
LEAD ELEMENT.



A platoon counterattack. A platoon may be given the mission of counterattacking for one of two reasons:

- **To recapture a defensive position or a key point, destroying or ejecting an enemy foothold.**
- **To stop an enemy attack by striking his flank, forcing him to stop and adopt a hasty defense.**

A platoon counterattack is planned at company level. Counterattack plans should be made to meet each probable enemy penetration. They must be well coordinated and executed violently. Preferably, a counterattack should be directed at an enemy flank. It must be supported with direct and indirect fire.

In outlying areas, where the terrain is relatively open, a mechanized infantry platoon accompanied by tanks can approach the counterattack objective mounted for speed. The tanks destroy the enemy's tanks and heavy weapons while the infantry dismounts to clear the objective. *(Nonmechanized infantry can counterattack in a similar manner by riding initially*

on the tanks.) In central or more congested areas, the tanks progress deliberately, from point to point, providing close support to the dismounted troops.

Counterattacks require:

- **An analysis of the probable avenues of enemy approach.**
- **Reconnaissance (along each counterattack route and of each proposed overwatch position) and rehearsal.**
- **Construction of obstacles and fighting positions where necessary to canalize or block the enemy.**
- **Gaps or lanes through these obstacles if the counterattacks are to be quick enough to affect the action.**
- **Rapid and aggressive execution. Leaders must set the example.**
- **Flexibility to react to unforeseen circumstances.**



CHAPTER 4

Defensive Operations**GENERAL**

In an urban area, the defender must take advantage of the abundant cover and concealment. He must also take advantage of restrictions to the attacker's maneuver and observation. By using the terrain and by fighting from well-prepared and mutually supporting positions, a defending force can inflict heavy losses on a much larger attacking force, or even defeat it.

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REASONS FOR DEFENDING AN URBAN AREA

DENY STRATEGIC AREAS OR POLITICAL CENTERS TO THE ENEMY

Certain urban areas contain strategic industrial, transportation, or economic complexes that must be defended. Political capitals and cultural centers may be defended for strictly psychological or national morale purposes even if they do not offer any tactical advantage to the defender. Because of the sprawl of many such areas, significant combat power is required for their defense. Thus, the decision to defend these complexes is normally the responsibility of political authorities or the theater commander.

RETAIN KEY TRANSPORTATION CENTERS

The defender's need to shift and concentrate combat power and to move large quantities of supplies over a wide battle area may require that he retain vital transportation centers. As most urban transportation centers serve large areas, the need to control such a center may even require a commander to defend the entire urban area that it serves.

CONTROL AVENUES OF APPROACH

The worldwide increase in sprawling urban areas has made it almost impossible for forces conducting combat operations to avoid cities and towns. Most avenues of approach are straddled by small towns every few kilometers. These areas may be used as battle positions and, in some cases, as strong-points.

If an attacker tries to bypass an urban area, he may encounter an array of tank-

killing weapons. To clear such an area, he will have to sacrifice speed and momentum and expend considerable resources.

ADD TO OR EXTEND OBSTACLE SYSTEMS

With little effort, a city or town can be made into a significant obstacle. Blocked streets can canalize attacking armor into mined areas or zones covered by antiarmor fire.

CONCENTRATE FORCE IN MORE CRITICAL AREAS

Because of the tactical advantages accruing to the defender, a well-trained force defending urban terrain can inflict significant losses on a numerically superior attacker. The defender can have the bulk of his combat power available for use in open terrain while the elements of his force defending in the urban area perform an economy-of-force role.

CONCEAL FORCES

Aerial photography, imagery, and sensor devices are much less effective in detecting forces deployed in cities than in open terrain. Careful emplacement of command posts (CP), reserves, combat service support complexes, and combat forces makes them difficult to detect.

REASONS FOR NOT DEFENDING AN URBAN AREA

A commander might choose to avoid defending in an urban area when —

- the area does not support the overall defensive plan,

- terrain nearby lets the enemy pass on covered or concealed routes,
- structures within the area do not adequately protect the defenders (*areas that are built mostly of light or flammable material should be avoided*),
- dominating terrain is adjacent to the area,
- cities are declared "open cities" (*NOTE: An open city is one declared "demilitarized" by the authorities responsible for its defense. Under international law, the defender must remove all military forces from the city, and the attacker cannot attack it*), and
- sufficient combat strength is not available for the defense.
- seize political, industrial, logistical, and communications facilities;
- destroy defending forces within an urban area; and
- gain passage through an urban area that cannot be bypassed.

TYPES OF ATTACK

Threat doctrine prescribes two types of attacks for seizing an urban area—the **Surprise Attack** (*also called an attack from the march*), and the **Deliberate Attack**.

SURPRISE ATTACK

A surprise attack is the preferred form of seizing an urban area. It is a fast, bold movement from the line of march by a strong forward detachment to seize an undefended or lightly defended urban area. A successful surprise attack avoids a costly and lengthy street-by-street, house-to-house battle, and permits the attacking force to move through the city without losing momentum. The surprise attack often seeks to capture, intact, key facilities such as bridges, railroads, airfields, industrial complexes, and utilities.

The forward detachment is normally a reinforced motorized rifle (MR) battalion of a motorized rifle division given the surprise attack mission. The forward detachment normally bypasses defending troops on the urban area's approaches. If resistance is light, the forward detachment seizes the most important objectives (*buildings or bridges*) and key streets, splitting the area into isolated pockets of resistance so they may be

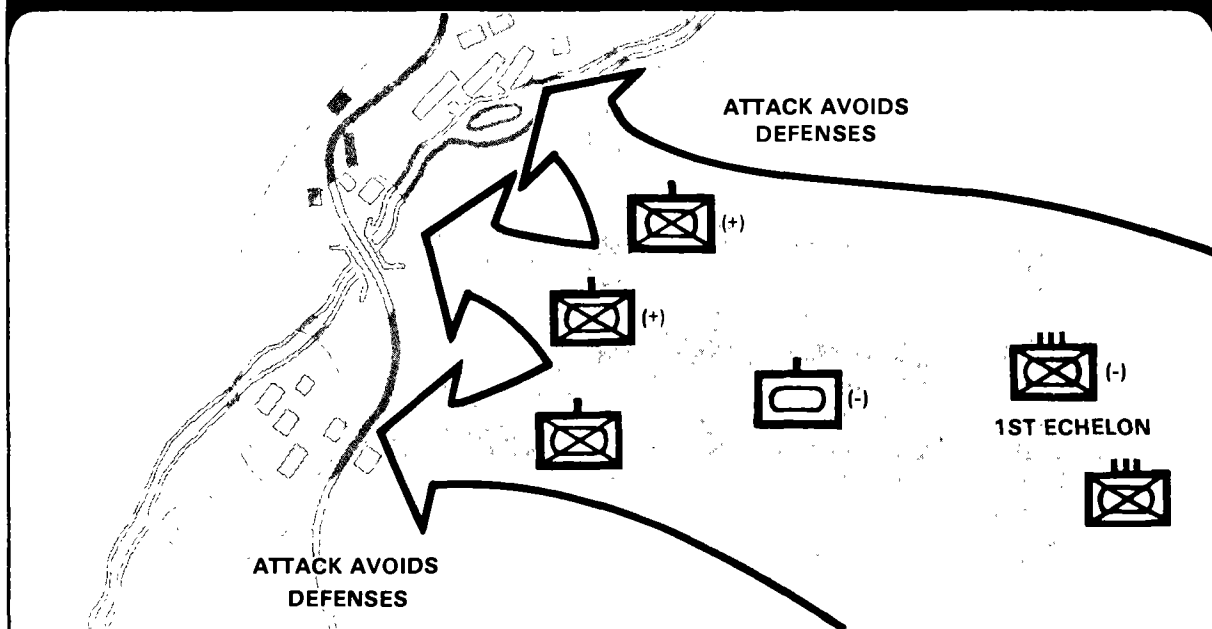
HOW THE THREAT ATTACKS

Although Threat doctrine emphasizes the bypass of urban areas, Threat commanders recognize the need to be prepared for urban combat. Their doctrine states that formations attacking across developed regions should expect to encounter at least one large urban area every 40 to 60 kilometers, as well as numerous villages and urban strip areas that restrict or even block traditional avenues of approach. The decision to attack urban areas may be based on tactical, strategic, or political considerations; and it is normally made at Army level or above. **Threat forces will attack urban areas to —**

destroyed piecemeal. The attacking force leaves stay-behind elements in positions they have cleared to keep the withdrawing forces

from reestablishing a defense and reoccupying positions through the area.

MR BATTALION CONDUCTS ATTACK TO SECURE KEY AREAS



If the surprise attack fails, the forward detachment may seize a foothold in the outskirts or seize an adjacent key terrain feature and wait for the main body to arrive.

Airborne or heliborne forces may support ground forward detachments by sealing off flanks or the rear of the objective area. These forces may also be employed as a forward detachment, to be used directly around or in the urban area. A forward detachment operating outside the range of forward artillery will normally get intensive reconnaissance and close air support from high-performance aircraft and helicopters.

DELIBERATE ATTACK

A deliberate attack is conducted when the surprise attack has failed or when the urban area is well defended. This attack involves a larger force, requires more

preparation, and has more artillery, mortar, and rocket support than a surprise attack. A deliberate attack is characterized by —

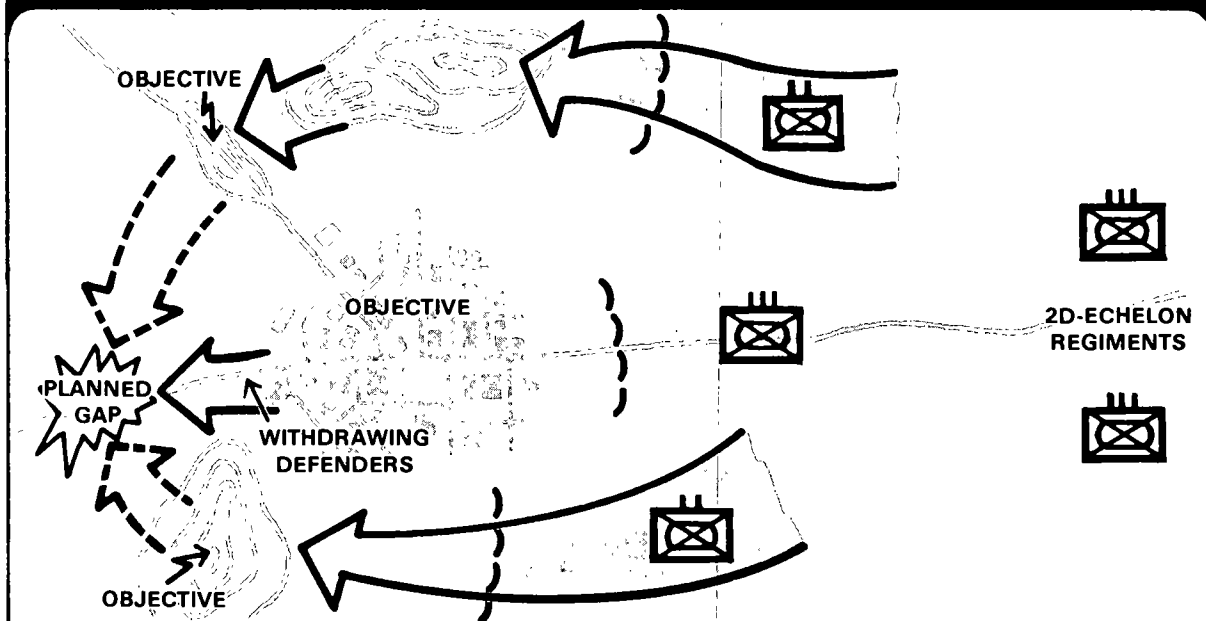
- isolation of the objective city,
- extensive reconnaissance,
- intense preassault fire support (*bombardment*), and
- attacks to secure a foothold and key objectives.

Isolation of the objective city is accomplished by denying reinforcement and resupply of city defenders and by blocking escape routes. The size and composition of the force tasked with isolating an objective city is determined by the area's size, shape, and adjacent terrain. A motorized rifle regiment may have two motorized rifle battalions to isolate the city. An exit may be

intentionally permitted to lure defenders out of the city and into open terrain where they can be attacked. After isolating the city, other units may conduct a siege while the

isolation force breaks contact and continues its advance. If the attacking commander's timetable permits, a siege is conducted to avoid a costly direct assault.

ISOLATION OF THE OBJECTIVE CITY



The Threat conducts **extensive reconnaissance** to learn of—

- **defensive dispositions,**
- **covered approaches leading to the flanks or the rear of the objective,**
- **location and strength of defensive strongpoints on the city's outer edge,**
- **main routes through the area,**
- **key buildings that dominate the urban area, and**
- **underground passages.**

Reconnaissance is continuous during all phases of the deliberate attack. Infiltrators, disguised as refugees, or other reconnaissance units may operate in an urban area for

several days before an assault. Information gathered by reconnaissance is supplemented by the study of city maps and plans and by getting current information from local residents. Reconnaissance teams may mount raids to capture prisoners and documents or to destroy power systems and other key facilities.

An intense preassault bombardment with howitzers, rockets, mortars, and high-performance aircraft precedes the deliberate attack. Priority of fire is allocated to the main attack to destroy defensive positions on the city's edge. Artillery attached to assaulting units normally does not participate in the bombardment but is usually reserved for direct fire support. **Other goals of the bombardment are to destroy:**

- **Communications facilities.**

- Heavy weapon positions.
- Command posts.
- Tall structures that permit observation.
- Troop emplacements.
- Reserves.

Incapacitating or nonpersistent lethal chemicals may be employed during the bombardment to inflict casualties while preventing the destruction of key facilities.

Smoke will normally be employed during artillery preparations to suppress the defender while attacking forces negotiate obstacles on the approaches and within the objective area.

Nuclear weapons may be employed during the bombardment if the city's facilities are not needed to support future operations. Nuclear weapons may be employed on the city's edge to rupture outer defenses, permitting a rapid assault into the city's center, or they may be employed within the city center to destroy defending reserves.

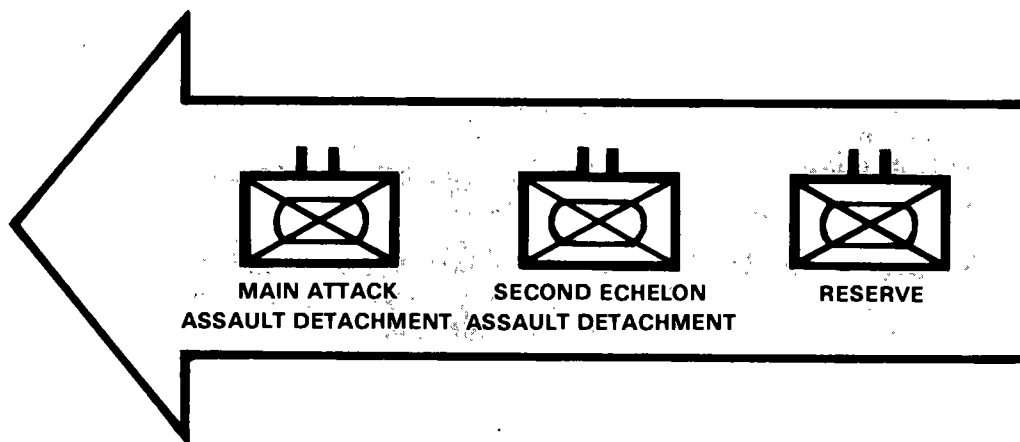
Threat forces attack to secure a foothold and key objectives during or immediately following the bombardment. Up to two battalions may attack each kilometer of the city's circumference. Attacking units are employed on the most favorable avenues of approach. Simultaneous attacks are made on the flanks and in the rear to capture specific objectives and to fragment the defenses. Frontal assaults are conducted only when a city cannot be flanked.

ORGANIZATION AND MISSIONS FOR THE DELIBERATE ATTACK

ORGANIZATION

Normally, a motorized rifle division will have one motorized rifle regiment conduct the main attack of an urban area. Within this motorized rifle regiment are three reinforced motorized rifle battalions, called **assault detachments**. These assault detachments make up the basic enemy organization for city warfare.

MOTORIZED RIFLE REGIMENT ORGANIZED FOR A MAIN ATTACK



One reinforced motorized rifle battalion (*assault detachment*) is normally designated as the main attack force. This battalion is reinforced by attaching:

- A tank company.
- A battery of self-propelled artillery for direct fire.
- An antitank gun battery.
- An engineer platoon.
- An NBC reconnaissance company.

An additional artillery battalion may be placed in direct support for indirect fire in the battalion's zone.

Motorized rifle companies are normally organized within the motorized rifle battalion as shown.

Motorized rifle companies are designated as groups. The motorized rifle companies conducting the main attack are normally reinforced with:

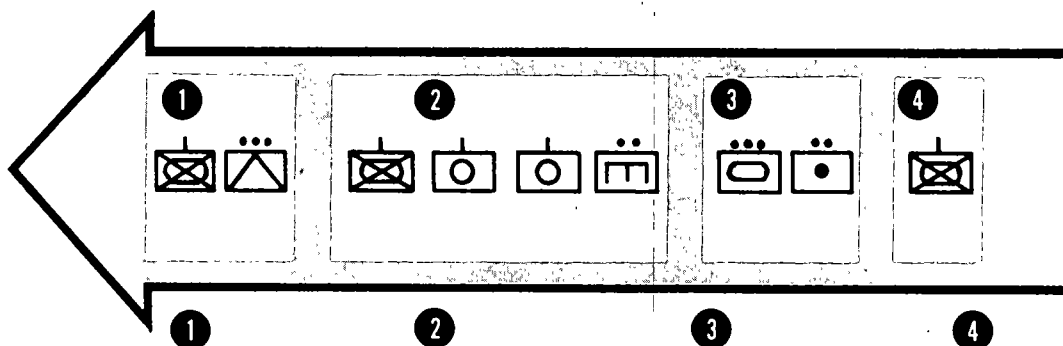
- A tank platoon.
- An artillery battery.
- Chemical and flamethrower units.
- An engineer squad.

Frequently, the battalion antitank gun platoon will be attached to the motorized rifle company making the main attack.

Elements of units attached to motorized rifle companies may be further attached down to platoons, giving each platoon at least one tank or artillery gun. These attachments allow independent operations by platoons in seizing their objectives. Sometimes these attachments are made down to squad level.

The second-echelon motorized rifle regiments and motorized rifle battalions are basically organized the same as the main attack elements (*first echelon*). This arrangement allows for replacement of the first echelon without changing attachments during the battle.

MOTORIZED RIFLE BATTALION ORGANIZED FOR A MAIN ATTACK



INFILTRATION GROUP
Motorized Rifle Company
Antitank Platoon

ASSAULT GROUP
Motorized Rifle Company
Two or three batteries of
direct fire artillery (self-pro-
pelled) Engineer Detachment
Demolition

SUPPORT GROUP
Tank Platoon
Three or four direct
fire guns

SECURITY GROUP
Motorized Rifle Company
(Provides flank security
and serves as reserve)

MISSIONS

Missions assigned to assault elements of a motorized rifle regiment may include:

● **Main attack assault detachment (first echelon)—**

- seize intermediate objective(s) on the city's edge, and
- attack along primary (main) routes to secure deep objectives and key facilities in zone.

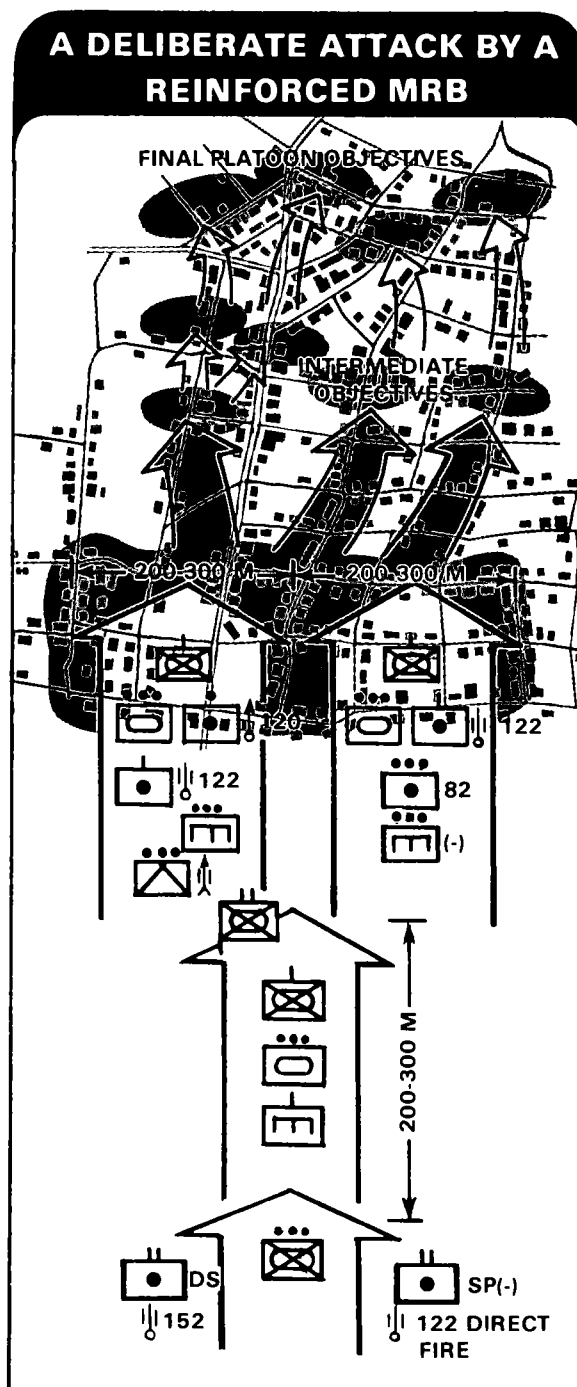
● **Second-echelon assault detachment—**

reinforce first echelon,

- be prepared to assume first-echelon mission,
- provide replacements to first-echelon units that have lost combat effectiveness, and
- reduce bypassed defense positions.

● **Reserve motorized rifle battalion—**

- pass through either echelon and attack to take advantage of a defensive weakness,
- provide flank protection, and
- perform firefighting and debris clearance missions as required.



COMBINED ARMS IN THE ATTACK

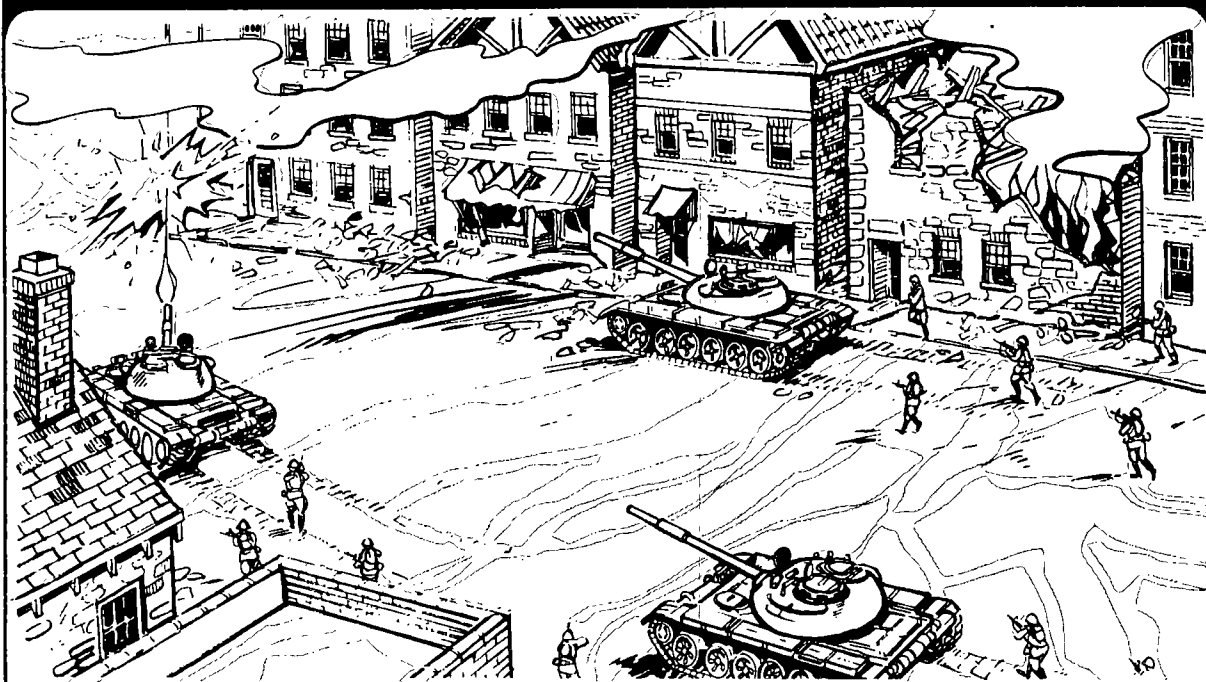
TANKS

Tanks that support motorized rifle companies may be employed by platoon, in sections, or singly with a motorized rifle squad.

Generally, a rifle squad moves with each tank and provides close-in security, relying on the tank for protection and fire support.

The lead tank normally fires at lower windows and doors of buildings, while following tanks fire into upper floors on both sides of the street. Tanks also, support the attack by firing on suspected positions, smashing barricades, and engaging opposing armor.

TANK AND TROOP FORMATIONS FOR ADVANCE INTO TOWNS



ARTILLERY

Threat forces recognize the difficulty of centralized fire control and the decreased effectiveness of indirect fire in cities. For these reasons, over half of their artillery may be attached and employed in a direct fire role. The artillery commander is normally located with the motorized rifle battalion commander.

Direct fire is used to create breaches in buildings, walls, and barricades. Guns displace forward alternately under cover of heavy fire from other guns, tanks, and motorized rifle units. Within the city, self-propelled artillery weapons are frequently employed as assault weapons and are attached to infantry platoons and squads.

Division artillery groups under division centralized control are used in a counterfire role. Massed fire from batteries of heavy artillery is used against large buildings or strongly fortified positions. Other missions for the division artillery group include interdiction and destruction of the defender's supply installations, headquarters, and communications centers.

ANTIAIRCRAFT ARTILLERY

The Threat employs antiaircraft weapons to protect artillery emplacements, exposed signal installations, and ammunition dumps (*mobile CPs normally move into buildings that offer protection*). ZSU 23-4, ZSU 57-2, and ZU and ZPU multiple machineguns are also used to suppress the defending force's weapons on the upper stories of buildings. The lighter weapons are often mounted on rooftops. Employment of air support is usually for reconnaissance, fire adjustment, and air defense.

CLOSE AIR SUPPORT

Close air support from fighters is usually aimed at preventing the movement of reserves or reinforcement of the defenders in a town.

MORTARS

Mortars cover the defender's routes of movement such as street intersections and alleys. Mortars are emplaced close to their targets behind walls or inside buildings which have had their roofs destroyed. From these concealed positions, they can promptly provide effective fire support for assault groups.

ENGINEERS

Engineers are attached to motorized rifle companies and given the following missions:

- Breach obstacles on approaches to the urban area.

- Clear passages through rubble and barricades.
- Block or clear underground passages.
- Clear or lay mines as required.

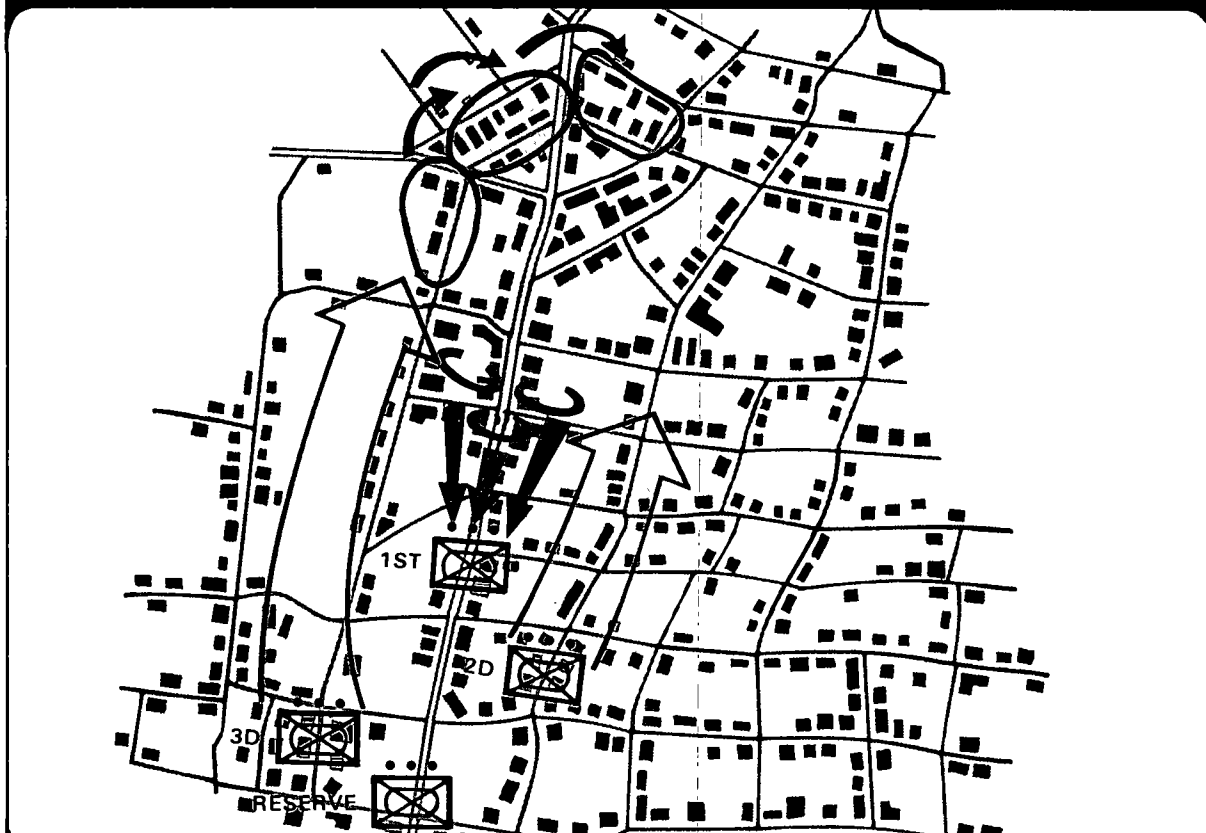
CONDUCT OF THE ATTACK

During or immediately after preparatory fires, engineers move forward under the cover of smoke with explosives to neutralize barriers and breach minefields on routes into the city. First-echelon assault groups attack to secure a foothold two or three blocks in depth on the city's edge. After securing the initial foothold and rupturing the outer

defenses, the first echelon may continue to attack, or the second echelon may pass through the foothold and attack along designated streets from one objective to another.

The attack within the city is characterized by bold, rapid movements to secure assigned objectives. Buildings along the route are not systematically searched or cleared unless resistance is strong. Bypassed defenders are left to be eliminated by the follow-on echelons or the reserve. If the leading echelon is stopped or slowed, the follow-on echelons or the reserve may be committed to continue to the objective, as in the following illustration.

A SECOND ECHELON COMMITTED AROUND ENGAGED FIRST ECHELON



Detected weaknesses in defenses are exploited by mounted attacks. Infantry mounted on tanks, fighting vehicles, or trucks move along streets to their assigned objectives.

In the assault of an objective, the assaulting forces isolate the position by fire or by securing adjacent buildings. Isolation is stressed to prevent defenders from escaping to a rearward position and to deny reinforcement. Attached artillery and tanks are used to suppress defensive fires and to breach walls for assaulting infantry. Advances along streets are avoided to reduce exposure to effective fire. Threat doctrine stresses the use of available covered routes, such as subways, tunnels, and sewers, or creating covered routes by blasting through intervening building walls. Once the assault of the objective begins, supporting fires shift to upper stories and to adjacent buildings. Assaulting infantry clear, in sequence, the ground floor, the basement, stairways, and each higher floor. Once secured, the position is prepared to repel counterattacks.

After securing battalion objectives and neutralizing defensive opposition, assault forces are moved beyond the city to minimize the risk of nuclear or chemical attack while massed in the city. Detailed clearance operations are normally passed to following units or to security formations.

Night operations in urban areas are conducted to—

- **bypass outlying villages being used by the defenders,**
- **seize initial objectives on the city's edge that can only be reached by an attack across open ground,**

- **attack across open areas (*parks, streets*) within cities,**
- **seize strongpoints,**
- **reduce street obstacles that are well protected by mines and covered by fires, and**
- **exploit successes of daylight operations by keeping pressure on the defense.**

The Threat can be effective in night operations as the result of extensive night training and by use of night vision equipment. Threat forces are equipped with night viewers, night driving and aiming devices, and sniperscopes. They habitually train at night and in other periods of reduced visibility.

Night attacks are normally preceded by detailed reconnaissance. Reconnaissance units may attempt to infiltrate the objectives to obtain detailed information and to guide assault forces. The difficulty of night navigation in cities and the proximity of defending forces favor a simple maneuver plan with close, easily recognized objectives. Motorized rifle assault forces normally attack in one echelon with units deployed on line. Surprise is achieved by withholding fire support until after the infantry assault has been detected. Once the attack has been discovered, direct support artillery illuminates the objective. Attached tanks and artillery join assault forces and suppress the defenses with direct fires.

When surprise cannot be achieved, night assaults may be preceded by direct fires against strongly defended buildings. Direct support artillery and mortars should seal off the objective area with indirect fire. Illumination is fired to guide forces, illuminate objectives, and blind the defender.

After securing objectives, assault forces consolidate to repel counterattacks.

DEFENSE OF URBAN TERRAIN BY US FORCES

The defense of an urban area should be organized around key terrain features, buildings, and areas which preserve the integrity of the defense and provide the defender ease of movement. The defender must organize his defense taking into account such characteristics of urban terrain as fire hazards, obstacles, communications restrictions, cover and concealment, movement difficulties, and fields of fire and observation.

DEFENSIVE MOVEMENT

AVENUES OF APPROACH

The defender must not only consider the conventional avenues of approach into and out of the city but also the avenues within built-up areas that are above and below ground level. The defender normally enjoys an advantage in that he knows the city and is able to move rapidly from position to position through buildings and underground passages.

COVER AND CONCEALMENT

The defender should prepare positions using the protective cover of walls, floors, and ceilings. Individual soldiers should constantly improve positions using all available materials. When he has to move, **the defender can minimize his exposure by—**

- **using prepared breaches through buildings,**

- **moving through previously reconnoitered and marked underground systems,**
- **using trenches, and**
- **using the concealment offered by smoke and darkness to cross open areas.**

The attacker must advance to accomplish his mission. To do so, he must cross streets and open areas between buildings where he is exposed to fires from concealed weapon positions.

OBSTACLES

A city itself is an obstacle since it canalizes and impedes an attack. Likely avenues of approach should be blocked by obstacles and covered by fire. Using wire entanglements to reinforce antitank obstacles will hinder the attacker as he attempts to breach them. Tank obstacles are improvised by blowing craters, demolishing walls, derailing or overturning streetcars or railroad cars, and making maximum use of rubble and debris. The mining and booby-trapping of obstacles, particularly rubble and debris, is an effective deterrent to breaching operations. Nuisance mines and boobytraps, when authorized, can be very effective when placed in unoccupied buildings.

FIELDS OF FIRE AND OBSERVATION

The defender must position weapons to obtain maximum effectiveness and mutual supporting fire, permitting long-range engagements out to the maximum effective ranges, when possible. Artillery forward observers (FO) should be well above street level to adjust fires on the enemy at maximum range. When possible, fires are preregistered on the most likely approaches.

PREPARATION FOR THE DEFENSE

This permits fires to be shifted rapidly to threatened areas. Final protective fires (FPFs) should be preregistered.

COMMUNICATIONS RESTRICTIONS

Wire is the primary means of communications used to control the defense of a city. Radio communications in urban terrain are normally degraded by the structures. Because of that and for security reasons, radio is an alternate means of communications. Messengers can be effectively used as an additional means of communications. Visual signals may also be used to add to other communications means, but are generally ineffective due to the screening effects of buildings, walls, etc. Signals must be prearranged, widely disseminated, and thoroughly understood by all assigned and attached units before they are used. Increased noise—another characteristic of urban combat—makes the effective use of sound signals especially difficult.

FIRE HAZARDS

The defender's detailed knowledge of the terrain permits him to avoid areas that are likely to be fire hazards. All cities are vulnerable to fire, especially those with many wooden buildings. **The defender can deliberately set fires to—**

- **disrupt and disorganize the attacker,**
- **canalize the attacker into favorable engagement areas, and**
- **obscure the attacker's observation.**

Planning and organizing the defense of an urban area follows the same general procedures and principles used in other defensive operations.

In developing a plan for the defense of an urban area, the defender considers METT, with special emphasis on fire support, preparation time, work priorities, and control measures.

Planning for the defense of a city must be detailed and centralized. However, since many actions in urban fighting are conducted by small units, control is decentralized during the actual conduct of the defense.

MISSION

As in other operations, the commander must receive, analyze, and understand the mission before any extensive planning can take place. The commander may receive the mission in a formal operation order or in fragmentary form; in any case he must analyze all specified and implied tasks.

ENEMY

The commander must also analyze the type of enemy he will encounter. If the attacker is primarily dismounted infantry, then the greatest danger is allowing him to gain a foothold. If the attacker is primarily armor or mounted motorized infantry, then the greatest danger is that he will be able to mass direct fire and destroy the defender's positions.

Intelligence gathering for urban defensive operations is not limited to only studying the enemy. Commanders must

emphasize the acquisition and use of all intelligence. The items of intelligence peculiar to urban combat are:

- Street, water, and sewer plans.
- Key installations and facilities.
- Key civilians.
- Civilian police and paramilitary forces.
- Sources of food.
- Communications facilities and plans.

To supplement the intelligence data provided by scouts and higher headquarters, battalion and company commanders must conduct a thorough reconnaissance of their defensive sectors and the surrounding terrain. During the reconnaissance, they must complete several tasks.

First, they must prepare a sketch map of the area. Building numbers should be assigned and indicated on the sketch. They should prepare enough of these sketches so that each platoon leader has a copy.

Second, they should prepare a notebook which describes each building. They should evaluate and carefully inspect each building to determine defensive strengths and weaknesses. Many structures that appear strong may have walls which offer little protection (see appendix C). Particular attention should be paid to strongly constructed buildings—those that have walls that provide protection from direct fire and ceilings that will support the weight of the upper stories if they collapse. Buildings with few windows or doors and those built of nonflammable materials should be noted for possible use.

Buildings should also be checked for basements and fields of fire. During the reconnaissance, the commanders should be alert for buildings with adequate fields of fire and room areas sufficient for firing of recoilless weapons, Dragons, and TOWs.

TERRAIN

Urban terrain is three-dimensional: ground level (*streets and parks*), above ground (*buildings*), and below ground (*subways and sewers*). Analysis of all man-made and natural terrain features is critical when planning to defend on urban terrain.

Chapter 1 introduces the four categories of urban areas: villages, strip areas, towns or small cities, and large cities. The commander's defense plan is affected by the type of urban area he will be operating in.

Villages on the approaches to large towns or cities may be used by commanders to add depth to the defense or to secure the flanks. These villages are often characterized by clusters of stone, brick, or concrete houses and buildings. Company-size battle positions can be established in villages to block approaches into main defensive positions.

Care must be exercised in selecting a village to defend. If the terrain allows a village to be bypassed and there are no other villages on defendable terrain within mutually supporting distance, it may not be wise to defend in that village. The defending force could be easily cut off.

Villages are often situated on choke points in valleys, dominating the only high-speed avenue of approach through the terrain. If the buildings in such a village are

strongly constructed and provide excellent protection against both direct and indirect fires, a formidable defense can be formed by

placing a company in the town, while controlling adjacent terrain with other battalion elements.

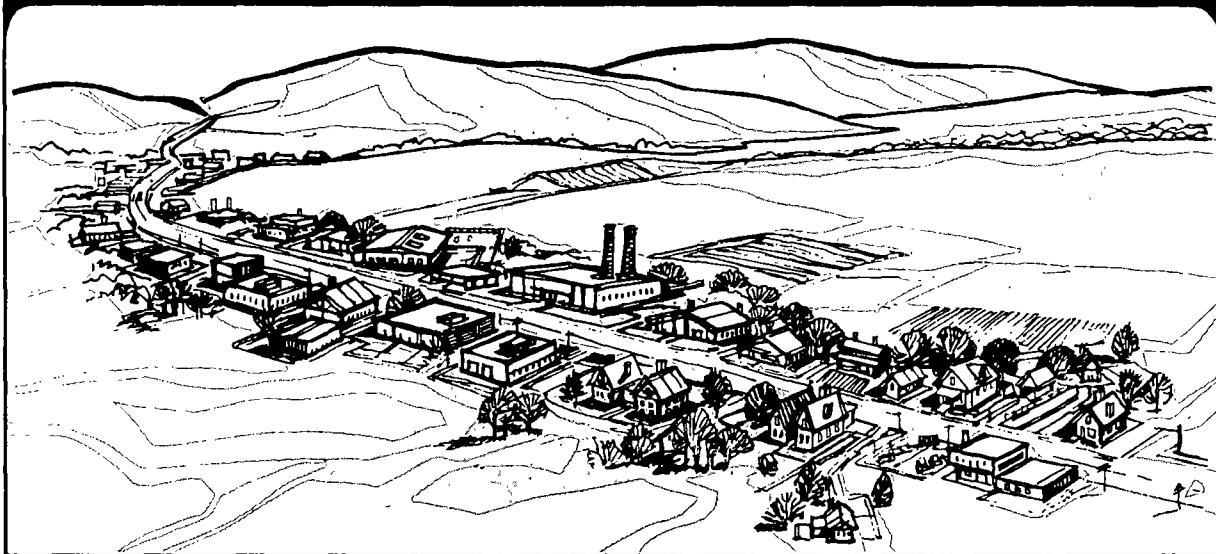
VILLAGE



Strip areas are formed as houses, stores, and factories are built along roads or down valleys between towns and villages. They afford the defender the same advantages that villages do. If visibility is good and sufficient fields of fire are

available, an element acting as a covering force can occupy a few positions within the strip and deceive the enemy into thinking it is an extensive defense line. Strip areas often afford covered avenues of withdrawal to the flanks.

STRIP AREAS



In **small cities and towns**, it is often difficult to find positions that provide both good fields of fire and good cover. The forward edges of a town usually offer the best fields of fire, but normally they can be easily targeted by enemy overwatch and supporting fire. These areas often contain residential buildings constructed of light material. Factories, civic buildings, and other heavy structures, which provide adequate cover and are more suitable for a defense, are generally deeper in the town and have limited fields of fire on likely avenues of approach.

Because the forward edge of a town is the obvious position for the defender, **it should be avoided unless—**

- **terrain limits the enemy's ability to engage it with accurate fires, and**
- **it contains strongly constructed buildings which offer adequate protection from enemy fire.**

A force may initially be assigned battle positions on the forward edge of the town. Its mission is to provide early warning of the

enemy's advance, engage the enemy at long range, and deceive the enemy as to the true location of the defense. This force should withdraw in time to avoid decisive engagement. If there is limited observation from the forward edge, a force should be positioned on more favorable terrain forward or to the flanks of the town to gain better observation and, if possible, engage the enemy at long range.

A small force can gain a significant combat power advantage when defending a small city or town if it places tanks, TOWs, and Dragons on positions dominating critical approaches. To deny the enemy the ability to bypass the town or city, the defending force must control surrounding key terrain and coordinate with adjacent forces. Obstacles and minefields assist in slowing and canalizing the attacker. Reserve forces should be placed where they can quickly reinforce critical areas.

To prevent airmobile or airborne landings within the city or town, the commander must cover probable landing zones and drop zones, such as parks or stadiums, with obstacles or fire.

SMALL CITIES AND TOWNS



In **large urban areas**, the commander must consider that the terrain is restrictive due to large buildings that are normally close together. This requires a higher density of troops and smaller defensive sectors than in natural open terrain. Units will occupy defensive frontage approximately one-third of those in open areas. An infantry company, which might occupy 1,500 to 2,000 meters in open terrain, will likely be restricted to a frontage of 300 to 800 meters in urban terrain, depending on the density of buildings and rubble, and the street patterns.

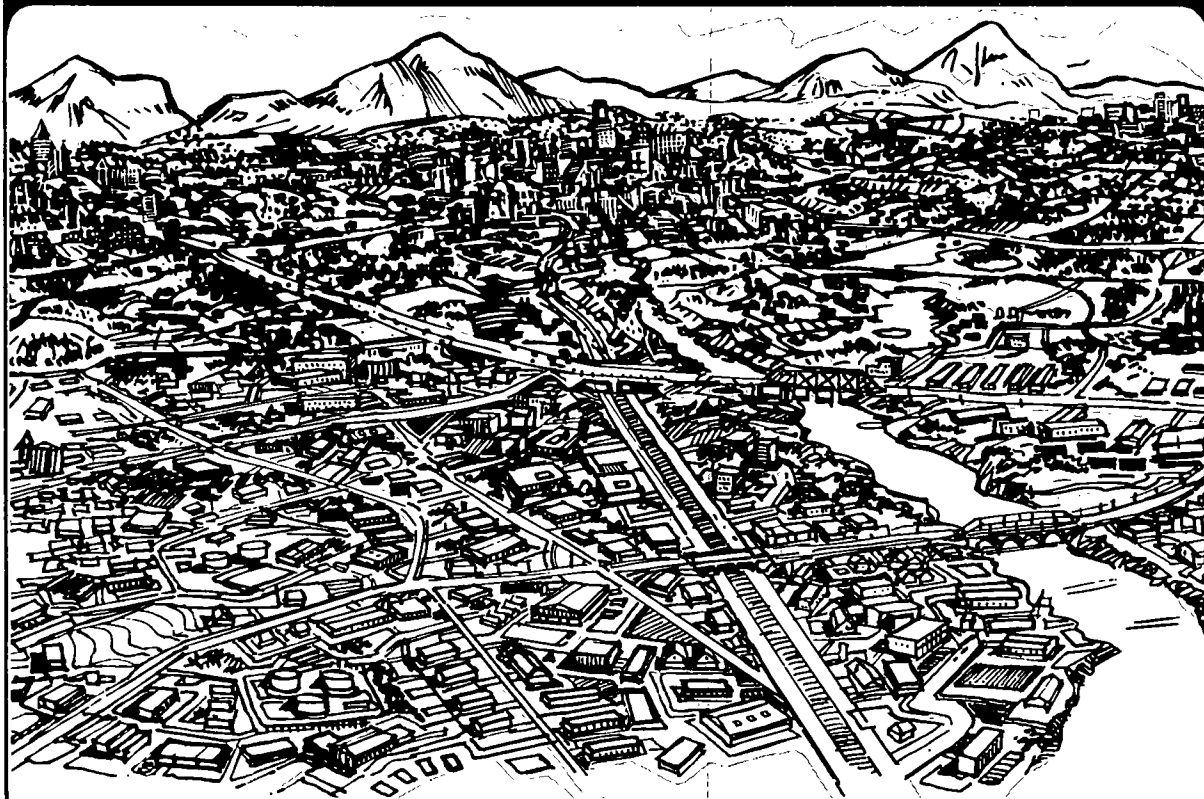
UNIT	FRONTAGES	DEPTHS
Battalion or Battalion Task Force	4 to 8 blocks	2 to 4 blocks
Company or Company Team	3 to 6 blocks	2 to 3 blocks
NOTE: An average city block has a frontage of about 175 meters. These minimum figures apply in areas of dense, block-type construction, multistory buildings, and underground passages.		

In a large town or city, a battalion is normally given a sector to defend and normally establishes a series of defensive positions. Unlike villages or towns, open terrain adjacent to the built-up area will normally not be present for the commander to integrate into his plan. Although mutual support between positions should be maintained, urban terrain often allows for infiltration routes that the enemy may use to pass between positions. **Thus, the defender must identify:**

- **Positions which enable him to place surprise fires on the enemy.**
- **Covered and concealed routes for friendly elements to move between positions (*for example, subways and sewers*).**
- **Structures which dominate large areas.**

- Areas such as parks, boulevards, rivers, highways, and railroads where antitank weapons have fields of fire.
- Firing positions for mortars.
- Command locations that offer cover, concealment, and ease of command and control.
- Protected storage areas for supplies.

LARGE URBAN AREAS

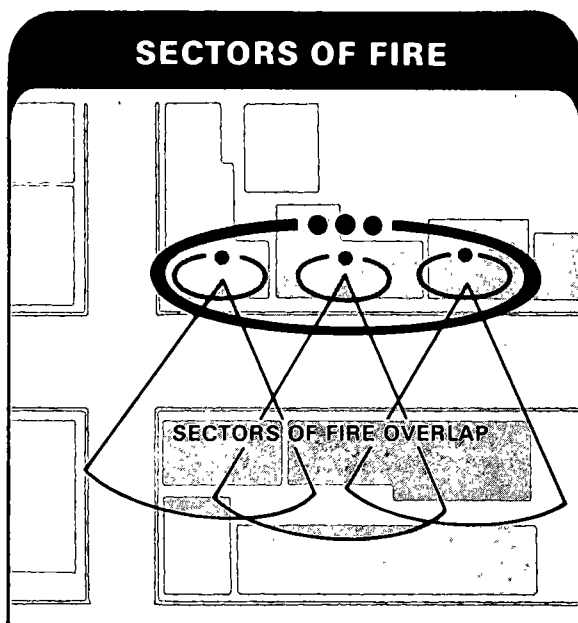


Buildings that contribute most to the general plan of defense are selected for occupation. Mutual support between positions is essential. Buildings that are selected should—

- offer good protection;
- have strong floors to keep the structure from collapsing under weight of debris;
- have thick walls;
- be constructed of nonflammable materials (*avoid wood*);
- be strategically located (*for example, corner buildings and prominent structures*); and
- be adjacent to streets, alleys, vacant lots, and park sites. (*These buildings usually provide better fields of fire and are more easily tied in with other buildings.*)

TROOPS AVAILABLE EMPLOYMENT OF SQUADS

Squads are generally employed abreast so that they all can shoot toward the expected direction of attack. In urban terrain, squads may be separated by rooms within buildings or be in different buildings. It is critical that squad positions be mutually supporting and allow for overlapping sectors of fire, even if the buildings and walls separate the positions.



EMPLOYMENT OF PLATOONS

Once the commander has decided where to defend, he should select platoon battle positions or sectors for the platoons to defend that—

- block or restrict the enemy's advances, and
- control key areas.

The frontage for a platoon will be approximately one to two city blocks. In

addition to his primary and alternate positions, the platoon leader normally selects one supplementary position to reorient his defense in order to meet enemy threats from a different direction.

EMPLOYMENT OF COMPANIES

Battalion commanders employ their companies in battle positions or sectors. Depending on the type of urban area, a company may be employed on the forward edge of the flanks of the area in order to force the enemy to deploy early without decisive engagement. The other companies may then be employed in a series of strongpoints in the center of the city or town. In all cases, mutual support between positions is essential.

The frontage of a company or company team defending in an urban area will normally be three to six city blocks. Companies should also have designated alternate and supplementary positions.

EMPLOYMENT OF THE RESERVE

The commander's defense plan must consider the employment of the reserve. For urban combat, a reserve force—

- normally consists primarily of infantry,
- must be as mobile as possible,
- may be a platoon at company level or one or two platoons at battalion level, and
- may be supported by tanks.

The reserve force should be prepared to—

- counterattack to regain key positions,

- block enemy penetrations,
- meet unexpected thrusts, and
- assist by fire in the disengagement and withdrawal of endangered positions.

EMPLOYMENT OF TANKS

The commander should employ tanks to take advantage of their long-range fires and mobility. Urban terrain restricts the mobility of tanks and makes them vulnerable to the antiarmor weapons of the enemy infantry.

When tanks are employed in the defense of a city, infantry should be positioned to provide security against close-in fires and to detect targets. Antitank weapons should supplement tank fires. Tanks should be assigned primary, alternate, and supplementary positions, as well as primary and alternate sectors.

Tanks should be located on likely enemy avenues of approach to take advantage of their long-range fires. They may be:

- Positioned on the edge of the city in mutually supporting positions.
- Positioned on key terrain on the flanks of towns and villages.
- Used to cover barricades and obstacles by fire.
- Part of the reserve.

Tanks are normally employed by platoon. However, in some urban situations, sections and even individual tanks may be employed with infantry platoons or squads. This is done in order to provide the tanks with the close-in security of the infantry. When retained under the control of a company or company team commander, a tank platoon

provides a mobile force to respond to enemy threats on different avenues of approach.

EMPLOYMENT OF FIRE SUPPORT

Artillery fire support may be used in the direct or indirect fire role. Artillery fire should be used to:

- Suppress and blind enemy overwatch elements.
- Engage enemy infantry.
- Provide counterbattery fire.
- Support counterattacks.
- Provide direct fire when necessary.

MORTARS at battalion and company level are employed to maximize the effect of their high-angle fires. They should be used to engage:

- Enemy overwatch positions.
- Enemy infantry before they seize a foothold.
- Targets on rooftops.
- Enemy reinforcements as they come within range.

Fire planning must be comprehensive due to the proximity of buildings to targets, minimum range restrictions, and repositioning requirements. Mortar and artillery fires are planned on top of and immediately around defensive positions for close support.

FPPs are planned to stop assaults in front of the defensive positions. Fires within the city are planned along likely routes of advance to destroy the enemy as he attempts to deepen a penetration.

At battalion level, the commander should establish priorities of fire based on avenues of approach and Threat systems that present the greatest danger to the defense. **For example:**

- **During the attacker's initial advance, tanks, BMPs, and overwatching elements are the greatest threat to the defense. ATGMs should concentrate on destroying tanks first, then BMPs. Artillery and mortar fires should suppress and destroy enemy ATGMs.**
- **If enemy formations secure a foothold, priority is shifted to destruction of enemy forces within the penetration.**

As the enemy attack progresses in the city, fires are increased to separate infantry from supporting tanks and fighting vehicles. During this phase, artillery concentrates on attacking infantry, counterfire missions, and the destruction of reinforcements that are approaching the city.

When initiated, counterattacks are given priority of supporting fires. When artillery is firing the missions as mentioned above, it must remain mobile and be prepared to displace to preplanned positions to avoid enemy counterbattery fire.

The battalion heavy mortar platoon may be initially positioned forward in support of the scout platoon. After withdrawal of the scouts, the mortar platoon is positioned where it can support the whole battalion.

At company and platoon level, fire plans include fires of organic, attached, and supporting weapons. The company commander also plans his mortar and

artillery fires on top of and immediately around his battle positions for close support.

Based on the location of platoon positions in relation to the most likely enemy avenues of approach, the company commanders assign FPFs to platoon leaders. Each rifle platoon leader then assigns each of his machineguns a sector of fire and a final protective line (FPL). These positions should be selected to provide interlocking grazing fire and **mutual support** between adjacent units. It is essential that proposed FPLs be "walked out" to determine the extent of grazing fire available and to locate dead grazing fire available and to locate deadspace. **Deadspace can be covered by:**

- **Sniper fire.**
- **Grenade launchers.**
- **Mines and boobytraps.**
- **Indirect fires.**
- **Obstacles.**

FPLs are fired on preplanned signals from the platoon leader.

EMPLOYMENT OF AIR DEFENSE ASSETS

Assets available to the commander, such as Redeye and Vulcan, are normally employed to insure all-round air defense. The lack of good firing positions for long-range air defense missile systems in the urban area may limit the number of deployed weapons. In the defense, weapons systems may have to be winched or airlifted into positions. Rooftops and parking garages are good firing positions because they normally offer a better line-of-sight capability.

Redeye and Vulcans can be assigned the mission of protecting specific positions or placed in general support of the battalion.

EMPLOYMENT OF ENGINEERS

Engineers are employed under battalion control or attached to companies and platoons as required. Normally, one engineer platoon is attached to a battalion or battalion task force. **Commanders must consider engineer tasks that enhance:**

- Survivability.
- Mobility.
- Countermobility.

Tasks that engineers can accomplish in the defense of an urban area include:

- Constructing obstacles and rubble.
- Clearing fields of fire.
- Laying mines.
- Preparing routes to the rear.
- Preparing fighting positions.
- Other required tasks.

EMPLOYMENT OF THE ANTITANK PLATOON

The antitank platoon is normally attached to or in support of the battalion security force, providing long-range antitank fires forward of the main defense. Separate antitank sections may be attached to companies to cover likely armor approaches. Once the security force withdraws, the antitank platoon is normally employed in general support of the battalion.

EMPLOYMENT OF SCOUTS

Depending on the situation and terrain, the battalion scout platoon may provide a security force forward of the urban area to

give the commander early warning of enemy activity. Upon withdrawal of the security force, **the scout platoon may be given any of the following missions:**

- Flank or rear security.
- Occupy a defensive sector (or *battle position*).
- Reserve.

EMPLOYMENT OF GROUND SURVEILLANCE RADAR (GSR)

GSR is best employed on the outskirts of urban areas because of the line-of-sight problems within the built-up area. During periods of limited visibility, if suitable avenues exist, GSR can be placed to monitor sectors. Because of the normal ranges found in urban areas and the likely narrowness of the sector ranges, GSR can be vulnerable to detection and direct fire. Cross vectoring will be important in this environment.

TIME AVAILABLE

The last aspect of METT is time available. At this point, the commander organizes and establishes priorities of work. In urban defensive operations, **an example priority of work sequence is:**

- Establish security.
- Assign sectors of responsibility and position key weapons.
- Clear fields of fire.
- Prepare initial fighting positions.
- Establish communications.

- Emplace obstacles and mines.
- Improve fighting positions.
- Prepare alternate and supplementary positions.
- Establish and mark all routes between positions.

Many tasks can be accomplished concurrently, but priorities for preparation should be according to the commander's order.

ESTABLISH SECURITY

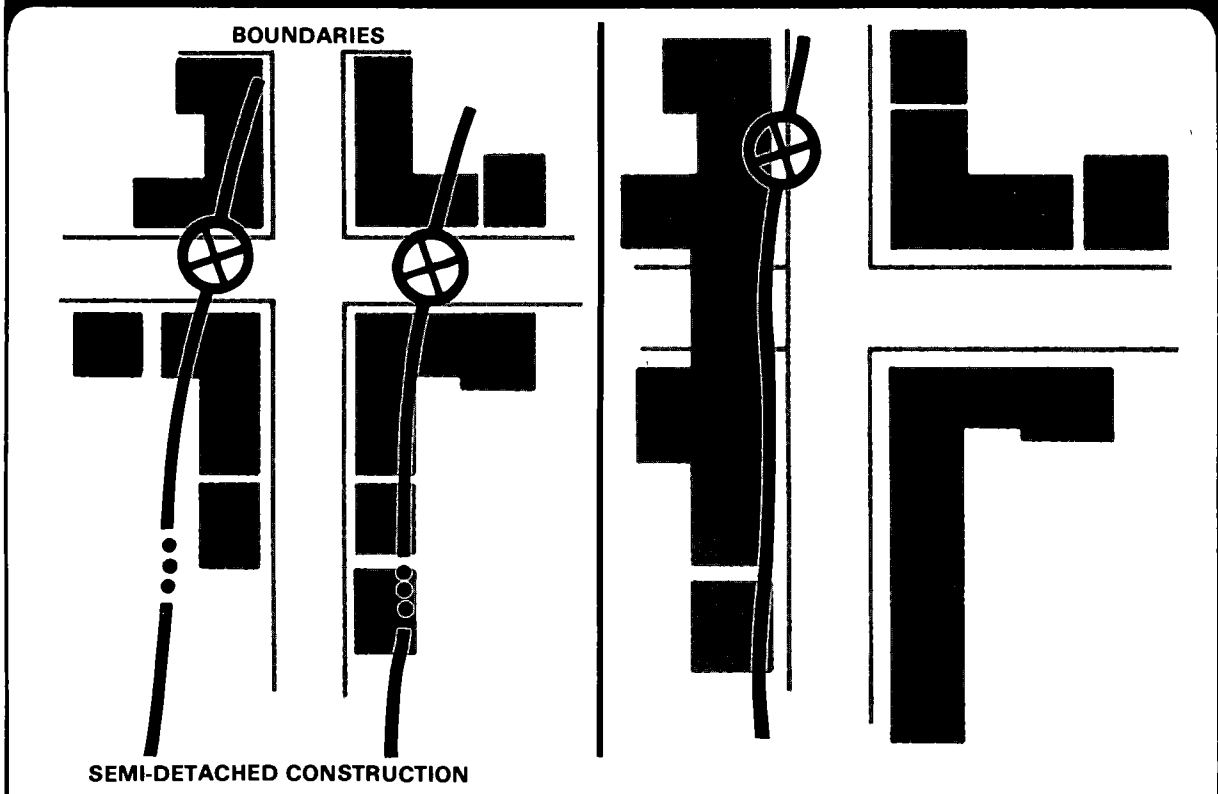
The unit should immediately establish all-round security by placing forces on likely approaches. Security for troop positions should also be established. Each fighting position should routinely have at least one

soldier to provide security during all preparations.

ASSIGN SECTORS OF RESPONSIBILITY

Boundaries define sectors of responsibility. They include areas within which units may fire and maneuver without interference or coordination with other units. Responsibility for primary avenues of approach should never be split. In areas of semidetached construction, where observation and movement are less restricted, boundaries should normally be established along alleys or streets in such a manner as to include both sides of a street in a single sector. Where buildings present a continuous front along streets, boundaries may have to extend to one side of the street.

BOUNDARIES IN URBAN TERRAIN



As mentioned earlier in this chapter, battalion and company commanders must analyze the terrain so as to maximize the effects of key weapons systems.

CLEAR FIELDS OF FIRE

In urban terrain, it may be necessary to selectively rubble certain buildings and structures to give greater protection and fields of fire to the defender. If the ceiling of a lower-story room can support the weight of the rubble, collapsing the top floor of a building before the battle starts may give better protection against indirect fires. Rubbling an entire building can increase the fields of fire and create an obstacle to enemy movement. Defenders must be careful, however, because rubbing the building too soon (*or rubbing too many*) may give away exact locations and destroy the cover from direct fire that the building affords. The rubbed buildings may also interfere with planned routes of withdrawal or counter-attack.

SELECT AND PREPARE INITIAL FIGHTING POSITIONS

The commander should select positions in depth. The unit should begin preparation of the positions as soon as troops arrive and continue preparation as long as the positions are occupied. Enemy infiltration or movement will sometimes occur between and behind friendly positions. Therefore, each position must be organized for all-round defense. The defender should also:

- Make minimum alteration to the outside appearance of buildings where positions are located.
- Screen or block windows and other openings to keep the enemy from seeing in and tossing in hand grenades. This must be done so that the enemy cannot

tell which openings the defenders are behind.

- Remove combustible material to limit the danger of fire. Fires are obviously dangerous to defenders and they create smoke which may conceal attacking troops. For these reasons, defenders should remove all flammable materials and stockpile fire-fighting equipment (*water, sand, etc.*). The danger of fire also influences the type of ammunition used in the defense. Tracers or incendiary rounds, for example, should not be used extensively if there is a high threat of fire.
- Turn off electricity and gas. Both propane and natural gas are explosive. Natural gas is poisonous as well and is not filtered by the protective mask. Propane gas, although not poisonous, is heavier than air, and if it leaks into an inclosed area, it will displace the oxygen and cause suffocation. Gas mains and electricity should be shut off at the facility that serves the city.
- Locate positions so as not to establish a pattern. The unit should avoid obvious firing locations, like church steeples.
- Camouflage positions.
- Reinforce positions with materials available—beds, furniture, etc.
- Block stairwells and doors with wire or other material to prevent enemy movement. Blow holes between floors and rooms to allow covered movement within a building.

- Prepare range cards and fire plans.
- Emplace machineguns in basements. When basements are not used, they should be sealed off to prevent enemy entry.

ESTABLISH COMMUNICATIONS

Commanders should consider the effects of urban terrain on communications when allocating time for this priority. The time spent establishing an effective communications system for the defense may be considerably longer than in more conventional terrain. **The following are characteristics that affect the means of communications:**

- Line-of-sight limitations under both visual and radio means of communication.
- Wire laid at street level is easily damaged by rubble and vehicular traffic.
- The noise of urban combat will be considerably higher than in other areas, making sound signals difficult to hear.

Commanders should consider the following techniques when planning for communications:

- Lay wire through buildings where possible to afford maximum protection.
- Use existing telephone systems when possible (*many telephone cables are underground*).
- Emplace radios and retransmission sites on the second or third floors of buildings.

- Use messengers at all levels. This is the most secure means.

EMPLACE OBSTACLES AND MINES

To save time and resources in the preparation of the defense, commanders must emphasize using all available materials found in urban areas to create obstacles. Such materials may include automobiles, railcars, and rubble.

Engineers must be prepared to provide timely advice and resources regarding the employment of obstacles and mines. The principles for employing mines and obstacles do not change in the urban defense; however, techniques change. For example, burying and concealing mines in streets will be difficult because of concrete and asphalt. Scatterable mines may be effective on the outskirts of a city or in parks; however, in a city core, areas may be too restrictive (*see appendix G*).

IMPROVE FIGHTING POSITIONS

Appendix E has specifics on preparation of fighting positions. When time permits, all positions, to include supplementary and alternate positions, should be reinforced with sandbags and provided overhead cover. Again, timely and accurate support from attached engineers will help in this effort.

ESTABLISH AND MARK ALL ROUTES BETWEEN POSITIONS

Reconnaissance by all defending elements should help select routes for use by defenders moving between positions. Movement is often critical in urban fighting, and early selection and marking of routes will add to the defender's advantages.

COMMAND AND CONTROL

As in all other defensive situations, the commander should position himself well forward so that he can control the action. In the urban environment, this is even more critical because of the numerous obstacles, poor visibility, difficulty in communicating, and intensity of the fighting.

COMMAND

Tactical operations centers (TOC) should be located underground. The vulnerability of TOCs will require all-round security. Since each TOC may have to secure itself, it should be near the reserve unit, when possible, for added security. When collocated with another unit, the TOC may not have to provide its own security.

Rubble will often hinder movement of tracked and wheeled vehicles. As a result, battalion and company headquarters must be prepared to backpack communications

and other equipment needed to operate. A simplified TOC organization will be required for ease of movement.

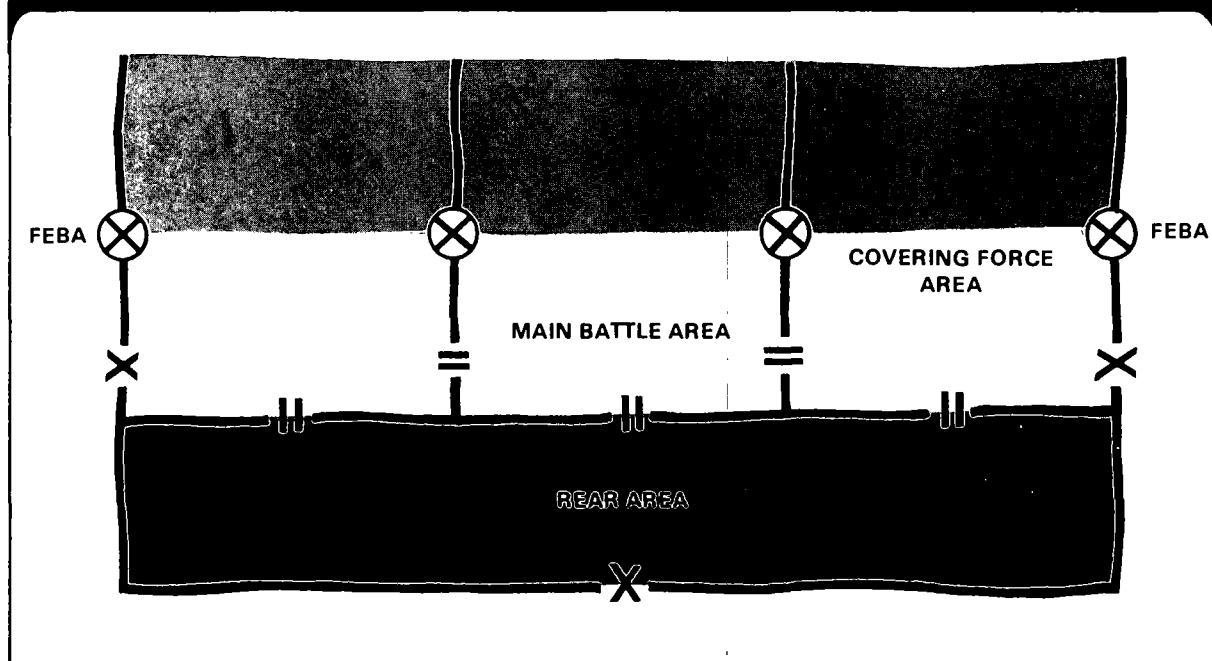
CONTROL MEASURES

Graphic control measures common to other tactical environments are also used in urban combat. Streets are ideal for phaselines. These and other control measures insure coordination throughout the chain of command.

ORGANIZATION OF THE DEFENSE

The defense is organized into three areas—the covering force area, the main battle area, and the rear area. A battalion defending in urban areas may have missions in any one of these areas, depending on the mission of the brigade or division.

ORGANIZATION OF THE BATTLEFIELD



COVERING FORCE AREA

The defensive battle begins with a combined arms covering force deployed well forward. The covering force uses all available forces to destroy enemy forces and slow down their momentum. Artillery, tactical air, and attack helicopters are employed to fight the covering force battle.

Covering forces contribute to the defense by:

- Alerting the urban defense to the strength, location, and general direction of the enemy's main and supporting attacks.
- Delaying enemy first-echelon detachments.
- Initiating early engagement of enemy forces.
- Deceiving the enemy as to the true location of the main defense force.

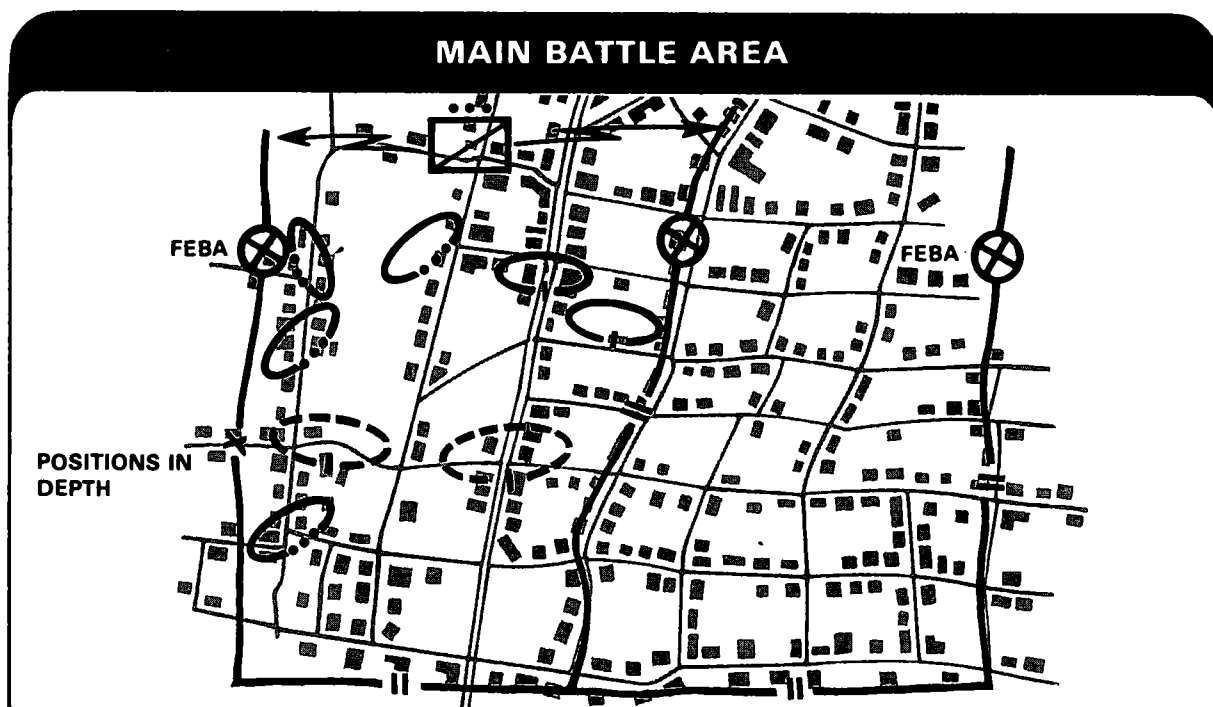
● Destroying enemy forces.

The withdrawal of the covering force must not result in easing of pressure on the enemy. The urban environment may complicate the handoff of the battle from the covering force to the main battle area force; but, it is important that this transition be accomplished smoothly to prevent the enemy from gaining momentum.

MAIN BATTLE AREA

The decisive battle is fought in the main battle area (MBA). Depending on the threat, the battalion commander may deploy companies on the forward edges of the city or in battle positions in depth. In either case, the defense is made stronger by tying in forces.

The battalion commander normally employs a security force to the front to provide early warning and assist in the hand-off of the covering force battle.



COUNTERATTACK

The size and location of battle positions within the battalion's sector depend largely on the type of enemy encountered and the ability to move between positions to block threatened areas. It may be desirable to place small antiarmor elements, secured by infantry, on the forward edges while the main defense is deployed in depth.

A force assigned battle positions on the forward edge of a city or town should:

- Provide early warning of the enemy's advance.
- Engage the enemy at long range.
- Deceive the enemy as to the true location of the defense.

Whether the battalion defends a town or a large city, as enemy forces enter and maneuver to seize initial objectives, the defender should subject the enemy to all available fires to destroy and suppress the direct fire weapons that support the ground attack. Tanks and BMPs should be engaged as soon as they come within the effective range of friendly antiarmor weapons.

As the enemy attack develops, the actions of small unit leaders will assume increased importance. Squad and platoon leaders will often be responsible for fighting independent battles. Thus, it is extremely important that each subordinate thoroughly understand his commander's concept of the defense.

REAR AREA

The rear area is behind the MBA. It is the area from which supply and maintenance support is sent forward. The rear area must be protected. The facilities in it are not organized as combat elements, and they are critical to the overall defense.

Small, infantry-heavy reserves, supported by tanks (*if present*), should be prepared to counterattack to regain key positions, to block enemy penetrations, to meet unexpected enemy thrusts, and to assist by fire the disengagement and withdrawal of endangered positions.

When counterattacking, the reserve may be attached to the unit in whose sector the counterattack is taking place. This makes coordination easier, especially if the counterattack goes through that unit's positions.

DEFENSE DURING LIMITED VISIBILITY

Threat forces routinely conduct night attacks to maintain daylight momentum. Companies should employ the following measures to defend against night attacks:

- Defensive positions and crew-served weapons should be shifted just before dark to deceive the enemy as to their exact location. (*A squad or fire team can often be shifted to an adjacent building and cover the same avenue of approach.*)
- Unoccupied areas between units, which can be covered by observed fire during daylight, may have to be occupied or patrolled at night.
- Radar, remote sensors, and night observation devices should be emplaced on streets and open areas.
- Nuisance mines, noise-making devices, tanglefoot tactical wire, and OPs should be positioned on secondary avenues of approach for early warning.

- **OPs, preplanned indirect fires, patrols, and anti-intrusion devices should be utilized to prevent infiltration.**
- **Artificial illumination should be planned.**
- **Leaders must maintain strict fire discipline to prevent disclosures of friendly positions.**
- **To avoid disclosure of defensive positions, indirect fire weapons, grenade launchers, and hand grenades should be used when defenses are probed.**

When the enemy begins his night assault, FPFs should be initiated by a prearranged signal. Crew-served weapons, tank-mounted weapons, and individual riflemen fire within their assigned sectors. Grenades and command-detonated mines should be used to supplement other fires as the enemy approaches the positions.

At the beginning of morning nautical twilight (BMNT), defenders should move to daylight positions. During attacks in fog, rain, or snowstorms, many of the techniques described for night defense apply. Commanders must rely heavily on OPs and patrolling in these situations.

CHAPTER 5

Combat Support and Combat Service Support

GENERAL

Urban combat places heavy demands on combat support and combat service support. Chapter 3, Offensive Operations, and Chapter 4, Defensive Operations, discuss the employment considerations of combat support and combat service support elements in the offense and defense; however, a more detailed discussion is required to explain the complexities of this support in the urban environment.

COMBAT SUPPORT

Combat support is fire support and other assistance provided to combat elements. It normally includes artillery, air defense, aviation (*less air cavalry*), engineers, military police, communications, and electronic warfare.

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FIELD ARTILLERY

A battalion or battalion task force is normally supported by a field artillery battalion in direct support (DS) to the brigade. In some situations, a battery will be placed in DS of a battalion task force. Supporting artillery may be used in either a direct or an indirect fire role. When planning for fire support in an urban area, the battalion commander, in coordination with the fire support officer (FSO), considers the following:

- Target acquisition will be more difficult because of the increased cover and concealment afforded by the terrain.
- Indirect fires must be tightly controlled, since urban fighting results in opposing forces fighting in close combat.
- The effects of munitions will be limited by buildings.
- Fire restrictions (*such as a restrictive fire area or a no-fire area*) may be imposed to protect civilians and critical installations.
- Centralized control of field artillery at the DS battalion level makes it easier to mass organic and reinforcing field artillery. Fires that are massed and surprise the enemy, optimize the effects of artillery.
- The 155-mm and 8-inch self-propelled howitzers are effective in neutralizing concrete targets with direct fire. Concrete-piercing 155-mm and 8-inch rounds will penetrate 36 inches and 56 inches, respectively, of concrete at ranges of up to 2,200

meters. The 8-inch self-propelled howitzer must be closely protected when used in a direct fire mode because it has no armor protection for its crew.

- Restriction may be placed on artillery use in order to reduce rubbing on avenues of movement that may be used by friendly forces.

The use of airburst fires is an effective means of clearing snipers from rooftops. High-explosive shells with delay fuzes may be effective against enemy troops in the upper floors of buildings, but because of the overhead cover provided by the building, such shells will have little impact on enemy in the lower floors.

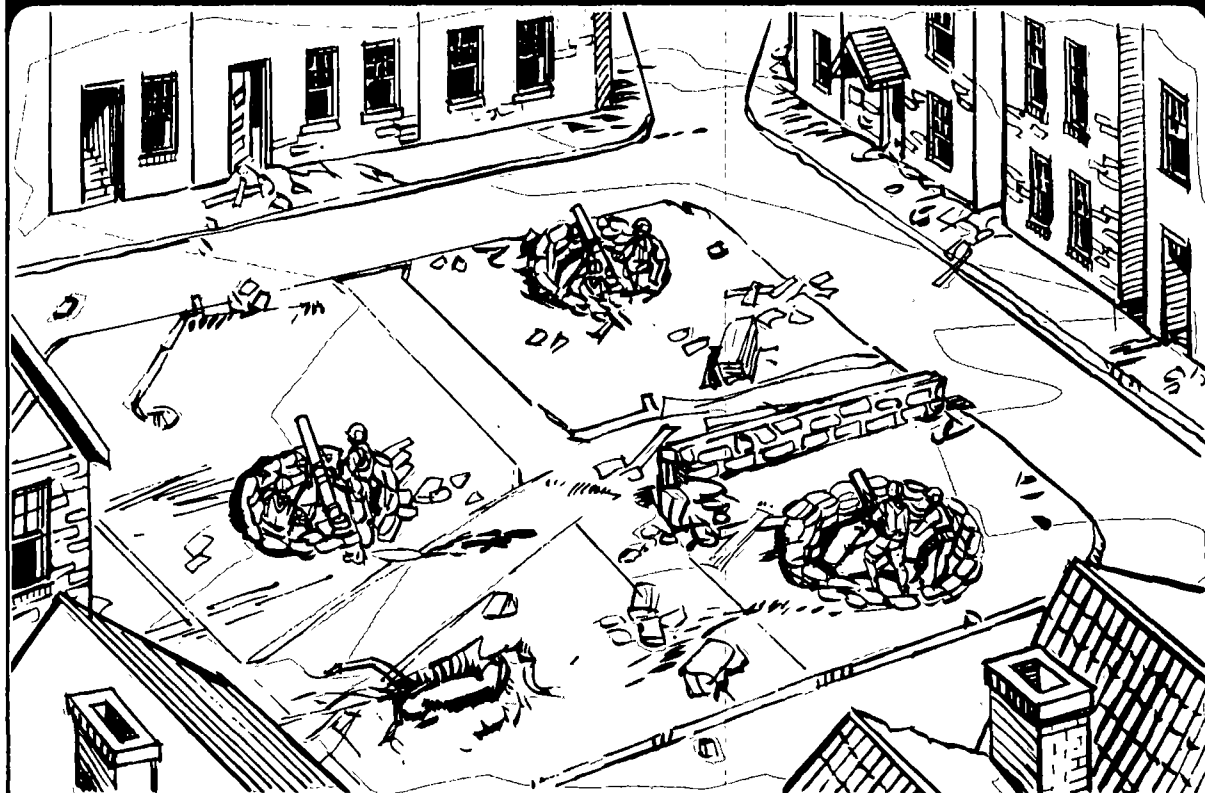
The planning and use of field artillery in offensive and defensive operations is also addressed in chapters 3 and 4.

MORTARS

Mortars are well suited for urban combat because of their characteristic high trajectory. The protection the enemy gets from buildings, however, reduces the effectiveness of mortar rounds, especially the 81-mm rounds. The mortars can fire high explosive (HE), white phosphorus (WP), or illumination. The infantry company's mortars offer the most responsive fire.

Mortars should be positioned on firm ground in areas where their fires are not masked by adjacent buildings. If the mortars are ground mounted and only concrete areas are available, they can be fired from a sandbagged emplacement.

MORTAR EMPLACEMENT IN A CITY



TACTICAL AIR

Like other combat elements in urban terrain, mortars may have to provide their own security, if it is not provided by the rifle platoons or headquarters elements.

NAVAL GUNFIRE

When a unit is operating near a coastline with gunfire support ships within range, naval gunfire can provide effective fire support. If naval gunfire is used, a shore fire control party (SFCP) of Marine personnel may be attached to the battalion. An SFCP has one liaison team and one spotting team, which provide ship-to-shore communications. The liaison team works in the fire support coordination center, while the spotting team is attached to one of the committed companies.

Close air support. A battalion may be supported by Air Force, Navy, Marine, or allied fighters and attack aircraft while fighting in urban terrain. The employment of close air support (CAS) depends on the following considerations:

Shock and Concussion

Heavy air bombardment provides great tactical advantages to an attacker. The shock and concussion of the bombardment reduces the efficiency of defending troops and destroys defensive positions.

Rubble and Debris

The rubble and debris resulting from air attacks may increase the defender's cover while creating significant obstacles to the movement of attacking forces.

AIR DEFENSE

Proximity of Friendly Troops

The proximity of opposing forces to friendly troops may require the use of precision-guided munitions, and can require the temporary disengagement of friendly forces in contact.

Indigenous Civilians or Key Facilities

The use of air weapons may be restricted by the presence of civilians or the requirement to preserve key facilities within a city.

Limited Ground Observation

Limited ground observation may require the use of airborne forward air controllers (FAC).

Offensive operations. CAS may be employed during offensive operations to—

- support the isolation of the city by interdicting entry and exit routes;
- support attacking units by reducing enemy strongpoints with precision-guided munitions; and
- conduct tactical air reconnaissance and provide detailed intelligence of enemy dispositions, equipment, and strengths.

Defensive operations. CAS may be employed during defensive operations to—

- strike enemy attack formations and concentrations outside the urban area, and
- provide precision-guided munitions support to counterattacks to retake fallen friendly strongpoints.

Basic air defense doctrine will not change when operating in urbanized terrain. The fundamental principles of mix, mass, mobility, and integration are all applicable to the employment of air defense assets.

The ground commander must consider the following when developing his air defense plan:

- Enemy air targets such as principal lines of communications, road and rail networks, and bridges are often found in and around urban areas.
- It may be difficult to find and occupy good firing positions for long-range air defense missile systems in the urban environment, and thus the number of weapons the commander can employ may be limited.
- Movement between positions is normally restricted in urban areas.
- Long-range systems can provide air defense cover from positions on or outside of the edge of the city.
- Radar masking and degraded communications will reduce air defense warning time for all units. Air defense control measures must be adjusted to permit responsive air defense within this reduced warning environment.

Chaparral and Vulcan. Positioning of Chaparral and Vulcan weapons in urban terrain will often be limited to more open areas without masking, such as parks, field, and rail yards.

Towed Chaparral and Vulcan (*separated from their prime movers*) may be emplaced by helicopter on rooftops in dense urban areas to provide protection against air

attacks from all directions. This should be accomplished only when justified by the expected length of occupation of the area and the enemy air threat.

CHAPARRAL/VULCAN IN URBAN TERRAIN



Redeye. The Redeye section provides protection for battalions as in any other operation. When employed within the built-up area, rooftops normally offer the best firing positions.

Machineguns. Heavy machineguns emplaced on rooftops can also provide additional air defense.

ARMY AVIATION

Army aviation support of urban operations includes attack helicopters, and utility helicopters for airmobile operations, command and control, relocation of combat or combat support units, resupply operations, observation, reconnaissance, operation of

sensory devices, and radio retransmission. When using Army aviation, the commander considers the enemy air situation, enemy air defenses, terrain in or adjacent to the city, and the availability of Army or Air Force suppression means.

Offensive missions. Missions for Army aviation in support of urban offensive operations include:

- **Airmobile operations** to secure key terrain adjacent to the urban area, and to secure key objectives when the area is lightly defended or when enemy fires have been suppressed.

USE OF HELICOPTERS

- **Employment of attack helicopters with aerial weapons to support the commander's scheme of maneuver in, or adjacent to, the urban area.**
- **Aerial resupply and medical evacuation.**
- **Command and control by providing rapid displacement of command elements to critical areas, and in some circumstances providing an airborne command platform.**
- **Aerial retransmission.**
- **Intelligence-gathering operations.**

Defensive missions. Missions for Army aviation during urban **defensive** operations include:

- **Long-range antiarmor fires.**
- **Rapid insertion or relocation of personnel (*e.g., antiarmor teams and reserves*).**
- **Rapid concentration of forces and fires.**
- **Retrograde movement of friendly forces.**
- **Combat service support operations.**
- **Command and control.**
- **Communications.**
- **Intelligence-gathering operations.**

It can be advantageous to use helicopters to conduct air assaults onto rooftops in urban combat. Careful analysis of the rooftops must be made prior to the start of the mission. In many of the more modern cities, office buildings often have helipads on their roofs which are ideal for landings. Other buildings, such as parking garages, are usually strong enough to support the weight of a helicopter. The delivery of troops onto a building can also be accomplished by rappelling from the helicopter or jumping out of the helicopter while it hovers just above the roof. When approaching rooftops, care must be taken to insure that there are no obstacles that could damage the helicopters or injure the troops, such as electrical wires, telephone poles, antennas, or enemy-emplaced mines and wire.

Small-scale assaults. There may be occasions when it is necessary to land small units onto the roof of a key building. Success in such an operation depends on minimum exposure and the suppression of all enemy positions that could fire on the helicopter. Depending on the construction of the roof, rappelling troops from the helicopter may be more advantageous than landing on the rooftop. The rappel is often more reliable and safer for the troops than a jump from a low hover. With practice, a rappel insertion can be accomplished with a minimum of exposure.

Large-scale assaults. For larger scale air assaults, rooftop landings are not practical, so open spaces within the urban area must be used. Open spaces, such as parks and parking lots, are common urban features. Several spaces large enough for helicopter operations normally can be found within 2 kilometers of a city's center.

Movement of troops and supplies. In an urban battle, heliborne troop movement may

become a significant requirement. Units engaged in house-to-house fighting normally suffer more casualties than units fighting in open terrain. The casualties often must be replaced quickly with fresh troops. At the same time, roads are likely to be crowded with resupply and evacuation vehicles, and may also be blocked with craters or rubble.

Helicopters provide a responsive means to move troops by flying nap-of-the-earth flight techniques down selected streets already secured and cleared of obstacles. The aircraft deliver the troops at the last covered position short of the fighting and then return

without exposure to enemy direct fire. Similar flight techniques can be used for aerial resupply and casualty evacuation.

Air assaults. Air assaults into enemy-held territory are more difficult. One technique is to fly low down a broad street or commercial ribbon, with attack helicopters and door gunners from utility helicopters suppressing buildings on either side of the street. Artillery fires can be scheduled to impact just prior to the helicopters' fly-by. Feints and demonstrations in the form of false insertions can confuse the enemy as to the real assault landings.

URBAN AIR ASSAULT



ENGINEERS

During urban fighting, divisional engineers should be attached to the dispersed maneuver elements; for example, one engineer company to each committed brigade, one platoon to each battalion or battalion task force, and a squad to each company or company team. Most engineer manual-labor tasks, however, will have to be completed by infantry units, with reinforcing engineer heavy-equipment support and technical supervision.

Offensive missions. Engineers may perform the following missions during offensive operations:

- Conduct a technical reconnaissance to determine the location and type of enemy obstacles and minefields, and to make breaching recommendations.
- Clear barricades and heavy rubble with earth-moving equipment to assist forward movement.
- Use the fires from the combat engineer vehicle (CEV), or hand-emplaced demolitions to destroy fortifications and strongpoints that cannot be reduced with the maneuver unit's organic assets.
- Use the CEV to destroy structures or clear rubble.
- Lay mines to protect flanks and rear areas.

Defensive missions. Engineers may perform the following missions during the defense of an urban area:

- Construct obstacles.

- Provide technical advice to maneuver commanders.
- Rubble buildings.
- Lay mines.
- Assist in the preparation of defensive strongpoints.
- Maintain counterattack, communications, and resupply routes.
- Fight as infantry, when necessary.

Defense against armor. In defensive situations, when opposed by an armor-heavy enemy, priority should be given to the construction of antiarmor obstacles throughout the urban area. Use of local materials, where possible, will make obstacle construction easier and reduce logistics requirements. Streets should be barricaded in front of defensive positions at the effective range of antitank weapons to be used to increase the effectiveness of antiarmor fires, to separate dismounted enemy infantry from their supporting tanks, and to assist in the delay and destruction of the attacker. Antitank mines with antihandling devices, integrated with antipersonnel mines in and around obstacles and covered by fires, will help stop an enemy attack.

MILITARY POLICE

Military police (MP) operations play a significant role in urban combat. MPs must be able to move rapidly and control large groups of people.

MP operations in urban areas will require continuous liaison and coordination with local civilian authorities for the maintenance of law, order, and security.

MPs may be tasked to perform the following missions:

- **Route reconnaissance, selection of alternate routes, convoy escort, and security of lines of communications.**
- **Control of roads, waterways, and railroad terminals, which are usually critical choke points in the main supply route.**
- **Security of critical civil installations such as communications centers, governmental buildings, and water and electrical supply sources.**
- **Refugee control in close cooperation with civil authorities.**
- **Straggler control.**
- **Escort for evacuated PWs.**

Commanders should understand that MP support may not always be available and that infantry soldiers may have to assume some of the MP missions.

COMMUNICATIONS

Buildings reduce the range of FM radios. To overcome this difficulty, battalions can set up retransmission stations or radio relays. These are most effective when placed in high areas. Antennas should be camouflaged by putting them near steeples or water towers. Remoting antennas away from radios or placing them on rooftops is another way to solve the range problem.

Wire. Wire is a more secure and effective means of communications in built-up areas. Wires should be laid overhead on existing poles or underground to prevent vehicles from cutting them.

Messengers and visual signals.

Messengers and visual signals can also be used in built-up areas. Messengers must plan routes that avoid pockets of resistance. Visual signals must be planned in such a way that they can be seen from the buildings.

Sound. Sound signals are normally not effective in urban areas because there is too much other noise.

Urban systems. If existing civil or military communications facilities can be captured intact, they can also be used by the infantry battalion. A civilian phone system, for instance, can provide a reliable, secure means of communication if codes and authentication tables are used. Other civilian media can also be used to broadcast messages to the public.

COMBAT SERVICE SUPPORT

Combat service support (CSS) elements provide support to sustain combat forces, primarily in the fields of administration and logistics. The support normally includes administration services, chaplain service, civil affairs, food service, finance, legal service, maintenance, medical service, supply, transportation, and other logistical services.

GUIDELINES

The following are guidelines for providing effective combat service support to units operating in urban terrain:

- **Stockpile supplies, water, food, ammunition, and prescribed load list (PLL), particularly where isolation is anticipated.**

- **Disperse and decentralize combat service support (CSS) systems, to include attachment to the support unit when required.**
- **Use host country support and civil resources whenever authorized and practical.**

PRINCIPLES

To **arm, fuel, fix, and man** combat systems during urban combat, CSS systems must be able to operate when isolated, dispersed, or immobilized.

Arm. Large quantities of ammunition will be consumed in both offensive and defensive urban combat. Commanders and S4s must plan for very high consumption rates of explosives, smoke, munitions, fragmentation grenades, and ammunition for flame weapons, mortars, antitank weapons, and other weapons. Tank ammunition expenditure should also be considered. Historical analysis has shown that the ammunition consumption rate for the first day of combat in urban terrain can be up to four times the normal rate. It then decreases during succeeding days of such combat.

Fuel. Combat vehicles usually consume less fuel in urban areas because they are driven less and for shorter distances. Engineer equipment and power generators, however, will probably need more fuel in the urban environment.

Fix. Maintenance teams must operate well forward to support the units in contact. They must prepare for operations when isolated. They should use civilian repair facilities when authorized. They must also be alert for infiltrating enemy, and should provide their own security.

Man. The most important personnel problems in urban combat are psychological stress and high casualty rates. Units must be

well trained and prepared psychologically for the possibility of having to fight isolated. Individual soldiers must expect and be prepared for close combat.

SUPPLY

The commander and the battalion S4 must understand that urban combat will place heavy demands on the supply system. Certain classes of supply will be depleted more rapidly than others. Many supply items, on the other hand, can be obtained within a city.

Class I (rations). Rations may be delivered through supply channels or delivered by the mess section of the support platoon. During urban combat, other classes of supply may overload the distribution system. In this case, it may be desirable to procure foodstuffs from the city. This should be closely coordinated and monitored by the S4.

Class II and IX (supplies and repair parts). Maintenance teams should stockpile spare authorized stockage list (ASL), PLL, and tools. Planning should provide for fixing vehicles, weapons, and engineer and power-generating equipment, on site if necessary.

Class III (petroleum, oil, and lubricants, [POL].) Fuel and petroleum products may have to be prestocked at appropriate levels in 5-gallon cans. Larger drums and tankers should be dispersed throughout the area in secure positions that allow rapid response to a unit's needs. Civilian assets should be used when authorized. Commanders must take measures to detect and prevent fuel contamination.

Class IV (barrier materials). In a defense, requirements for obstacle-building and fortification materials should be estimated early so that the materials can be brought forward in time for use. Again, many materials, such as lumber and bricks, can be found within the city.

Class V (ammunition). Combat in cities will require more ammunition than normal. To make resupply easier, ammunition supply points (ASP) should be set up in several locations chosen for convenience and protection.

Ammunition can be prestocked down to squad level. Rubble and barricades in city streets make transporting munitions during the battle slow and difficult. It may be necessary to stockpile at company level rather than depend on periodic resupply from ammunition supply points. Units may have to move ammunition in manpack loads, if necessary.

ASPs in large urban areas should be positioned where they are accessible to both forward units and reserve and combat support units. The positioning must support the concept of operations. Finally, ASPs must be secured against saboteurs and pilferers.

Other supplies. Other classes of supplies, to include medical supplies, personal items, and water, will be distributed as in any other operation; however, stockpiling as low as squad level becomes important since extended fighting by units that become isolated is common in urban combat.

COMBAT SERVICE SUPPORT WITHIN THE BATTALION

The overriding CSS problem is to prepare to fight for a long time while isolated. To insure continuous support, the command relationship of **attachment** may be used more often during urban combat due to the increased chance of units becoming isolated.

SUPPORT PLATOON

An important responsibility of the support platoon is the transportation of troops and supplies.

Ground movement. Transportation of troops and supplies during urban combat is normally restricted. Where possible, vehicles can be used to transport supplies. Armored personnel carriers in mechanized units are a good means of transport in cities. Organic wheeled vehicles provide limited transport for infantry units. Trucks should be hardened with sandbags.

Air movement. If the weather permits and the assets are available, helicopters can be used for resupply. Infantry units will very likely not be able to rely on helicopters for routine resupply, but may have to use them for emergency resupply. If helicopters are going to be used to resupply an isolated unit, plans must be made for suppressing enemy air defenses along the route.

Backpacking. In rubble areas, the terrain may be so rough that the only way to resupply forward units is by backpacked load.

MEDICAL PLATOON

The battalion aid station should be located in the combat trains, preferably within the city. The aid station should be in a building of strong construction, or in a suitable underground location. The aid station must be secured against attacks by infiltrators.

Urban operations, especially offensive operations, will result in high casualty rates. Helicopter support may not be available for medical evacuation, and ground transportation may fall short of needs. Therefore, commanders and leaders must be prepared to provide personnel to carry wounded soldiers on stretchers to the battalion aid station. Covered routes for evacuation must be reconnoitered in advance. Evacuation of the dead to a collection point is a company responsibility. The company should use its organic transportation to remove the dead from the battle area quickly.

Aidmen must be at positions at platoon level due to the possibility of becoming isolated. Individual infantrymen need first-aid training before they are committed in urban combat, since they are likely to become isolated from medical aid while in the urban environment.

Aid stations, hospitals, professional medical help, and medical supplies may be obtained from local civilian resources.

Individuals must be well trained in preventive medicine and personal hygiene. They must know the health hazards of contaminated water and food, animal and human remains, and exposed garbage.

ADMINISTRATION SERVICES

Timely and accurate administration is just as important in urban combat as in any other operation.

The close, intense, and isolated fighting of urban combat places heavy stress on the

soldier. The S1, in this regard, must plan for many personnel services and actions when feasible. **His plan may include:**

- **Postal services.**
- **Religious services.**
- **Rotation of personnel.**
- **Decorations and awards.**
- **Rest and leave system.**
- **Graves registration.**

EQUIPMENT SECURITY

A force may lose a battle if it allows civilians to steal or destroy its equipment. Even friendly civilians may steal supplies or furnish intelligence to the enemy. Civilians should be evacuated whenever possible to prevent pilferage, sabotage, and espionage. Control of the civilian population is normally provided by military police and civil affairs units. Collection points for noncombatants are established in rear areas.

APPENDIX A

References**ARMY REGULATIONS (AR)**

- AR 310-25 Dictionary of United States Army Terms
AR 310-50 Catalog of Abbreviations and Brevity Codes*

FIELD MANUALS (FM)

- FM 1-5 Instrument Flying and Navigation For Army Aviators
FM 3-10 Employment of Chemical Agents
FM 3-12 Operational Aspects of Radiological Defense
FM 3-50 Chemical Smoke Generator Units and Smoke Operations
FM 5-15 Field Fortifications
FM 5-20 Camouflage
FM 5-25 Explosives and Demolitions
FM 5-34 Engineer Field Data
FM 5-36 Route Reconnaissance and Classification
FM 7-7 (HTF) The Mechanized Infantry Platoon and Squad
FM 7-8 (HTF) The Infantry Platoon and Squad (Infantry, Airborne, Air Assault, Ranger)
FM 7-10 (HTF) The Infantry Rifle Company (Infantry, Airborne, Air Assault, Ranger)
FM 7-20 (HTF) The Infantry Battalion (Infantry, Airborne, Air Assault, Ranger)
FM 8-15 Medical Support in Divisions, Separate Brigades, and the Armored Cavalry Regiment
FM 8-35 Evacuation of the Sick and Wounded
FM 11-50 (HTF) Combat Communications Within the Division

*Available in microfiche only.

FM 17-50 (HTF)	Attack Helicopter Operations
FM 17-95 (HTF)	Cavalry
FM 19-1	Military Police Support Divisions and Separate Brigades
FM 19-15	Civil Disturbances
FM 19-30	Physical Security
FM 19-40	Enemy Prisoners of War, Civilian Internees and Detained Persons
FM 20-32	Mine/Countermine Operations at the Company Level
FM 20-33	Combat Flame Operations
FM 20-60	Battlefield Illumination
FM 21-10	Field Hygiene and Sanitation
FM 21-11	First Aid for Soldiers
FM 21-60	Visual Signals
FM 23-9	M16A1 Rifle and Rifle Marksmanship
FM 24-20	Field Wire and Field Cable Techniques
FM 27-10	The Law of Land Warfare
FM 30-5	Combat Intelligence
FM 30-10	Military Geographic Intelligence (Terrain)
FM 30-17	Counterintelligence Operations
FM 31-100	Surveillance, Target Acquisition and Night Observation (STANO) Operations
FM 32-1	Signal Intelligence (SIGINT) (U)
FM 32-6	SIGSEC Techniques
FM 33-1	Psychological Operations: US Army Doctrine
FM 38-1	Logistics Management
FM 41-5	Joint Manual for Civil Affairs
FM 41-10	Civil Affairs Operations
FM 44-1 (HTF)	US Army Air Defense Artillery Employment
FM 44-3 (HTF)	Air Defense Artillery Employment: Chaparral/Vulcan

FM 44-23 (HTF) US Army Air Defense Artillery Employment, Redeye
FM 54-2 The Division Support Command and Separate Brigade
Support Battalion
FM 71-1 (HTF) Tank and Mechanized Infantry Company Team
FM 71-2 (HTF) The Tank and Mechanized Infantry Battalion Task Force
FM 71-100 (HTF) Armored and Mechanized Division Operations
FM 71-101 (HTF) Infantry, Airborne, and Air Assault Division Operations
FM 90-2 (HTF) Tactical Deception
FM 90-10 (HTF) Military Operations on Urbanized Terrain (MOUT)
FM 100-5 (HTF) Operations
FM 100-10 Combat Service Support
FM 100-20 Low Intensity Conflict
FM 100-26 The Air-Ground Operations System
FM 101-10-1 Staff Officers Field Manual: Organizational, Technical, and
Logistic Data (Unclassified Data)
FM 101-10-2 Staff Officers Field Manual: Organizational, Technical, and
Logistical Data Extracts of Nondivisional Tables of
Organization and Equipment

RELATED INTERNATIONAL STANDARDIZATION AGREEMENTS (STANAG)*

International standardization agreements relevant to FM 90-10-1 are as follows:

NATO STANAG	CENTO STANAG	ABCA OSTAG	TITLE
2002 NBC	2002		MARKINGS OF CONTAMINATED OR DANGEROUS LAND AREAS
2003 OP	2003		PATROL REPORTS BY ARMY FORCES
2014 OP	2014		OPERATION ORDERS, WARNING ORDERS, ANNEXES TO OPERATION ORDERS, AND ADMINISTRATIVE AND LOGISTIC ORDERS
2029 OP	2029	514	METHOD OF DESCRIBING GROUND LOCATIONS, AREAS, AND BOUNDARIES
2088 ARTY	2088	182	BATTLEFIELD ILLUMINATION
2099 ARTY	2099		FIRE COORDINATION IN SUPPORT OF LAND FORCES
2112 NBC	2112		RADIOLOGICAL SURVEY
3736 TAC			OFFENSIVE AIR SUPPORT OPERATIONS

*Available from:
Naval Publications and Forms Center
5801 Tabor Avenue
Philadelphia, PA 19120
(DD Form 1425 may be utilized to requisition documents.)

APPENDIX B

Fundamental Urban Combat Skills**GENERAL**

Success in urban combat depends heavily on the proper employment of the rifle squad. The squad cannot be properly employed until every member of the squad is skilled in the techniques of urban combat: movement, entry into buildings, clearing buildings, use of hand grenades, selection and use of firing positions, defense against flame, and camouflage. This appendix covers those techniques, showing how the individual soldier correctly performs each skill in urban combat.

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MOVEMENT

Movement in urban areas is the first fundamental skill the soldier must master. Movement techniques must be practiced until they become second nature. To minimize exposure to enemy fire, the urban fighter must move so that he:

- Does not silhouette himself, but keeps low at all times.
- Avoids open areas (streets, alleys, parks).
- Selects the next covered position before moving.
- Conceals his movement by using smoke, buildings, rubble, or foliage.
- Moves rapidly from one position to another.

- Moves without masking his covering fires.
- Remains alert, ready for the unexpected.

Specific movement techniques used frequently in urban operations must be learned by all soldiers.

CROSSING A WALL

All soldiers must learn the correct method of going over a wall. After the soldier has reconnoitered the other side, he quickly rolls over the wall keeping a low silhouette. The speed of this move and the low silhouette will deny the enemy a good target.

CROSSING A WALL

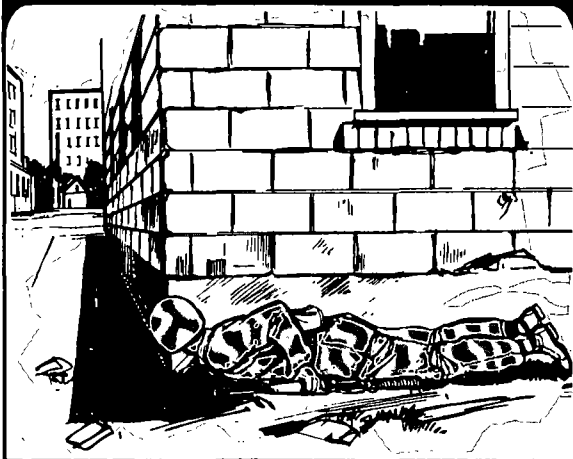


MOVING AROUND A CORNER

Corners are dangerous. The area around a corner must be observed before the soldier moves beyond the corner. The most common mistake a soldier makes at a corner is allowing his weapon to extend beyond the corner, exposing his position. Also, a soldier should not show his head at the height an enemy soldier would expect to see it.

When using the correct technique for looking around a corner, the soldier lies flat on the ground and does not extend his weapon beyond the corner of the building. He wears his steel helmet, and exposes his head (at ground level) *only* enough to permit observation around the corner.

LOOKING AROUND A CORNER

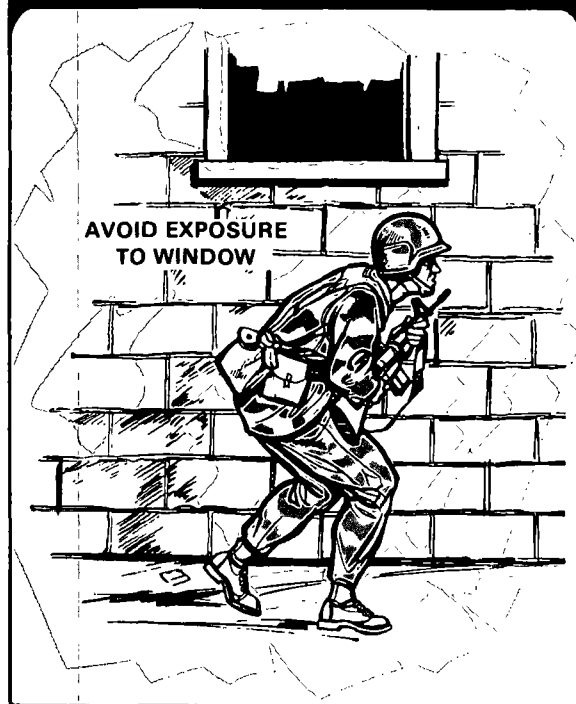


MOVING PAST WINDOWS

Windows present another hazard to the individual and the small-unit leader. The most common mistake in passing a window is exposing the head. If the soldier shows his head, an enemy gunner inside the building could engage him through the window without ever exposing himself to friendly covering fires.

When using the correct technique for passing a window, the soldier stays below the window level, taking care not to silhouette himself in the window. He hugs the side of the building. An enemy gunner inside the building would have to expose himself to fire from another position if he wished to engage him.

PASSING BY A WINDOW

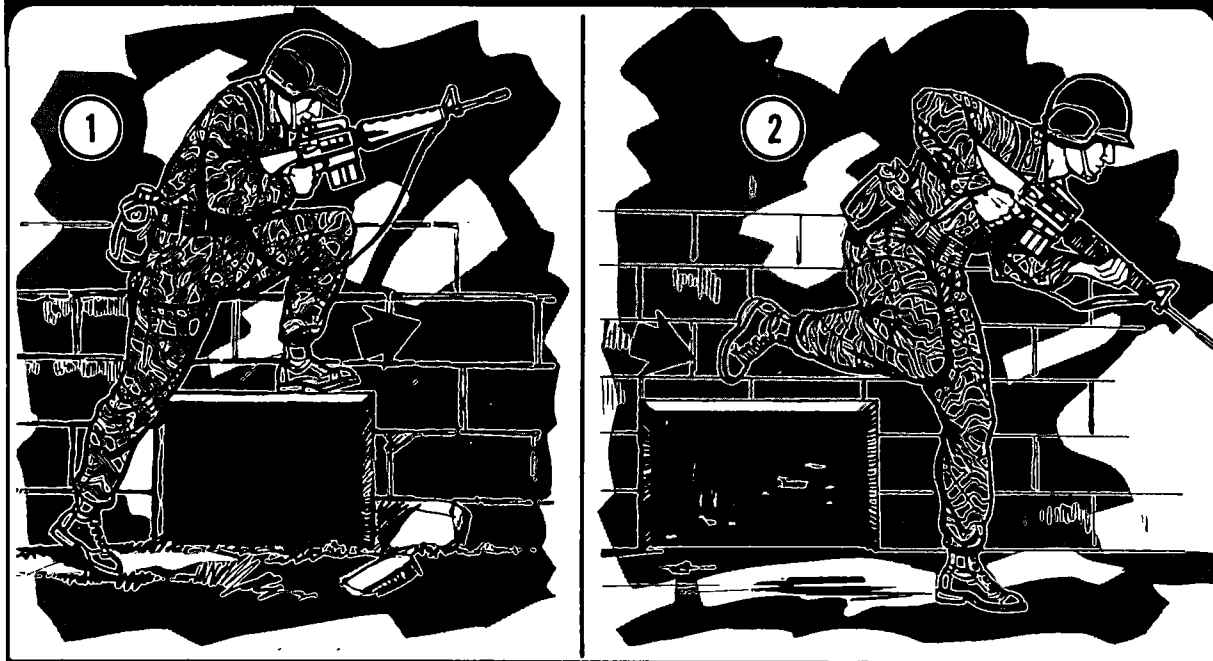


MOVING PAST BASEMENT WINDOWS

The same techniques used in passing first-floor windows are used when passing basement windows; however, the most common mistake in passing a basement window is not noticing it. A soldier should not merely walk or run past a basement window, as he presents a good target to an enemy gunner inside the building.

When using the correct procedure for negotiating a basement window, the soldier stays close to the wall of the building and steps or jumps past the window without exposing his legs.

PROCEDURE FOR NEGOTIATING A BASEMENT WINDOW



USING DOORWAYS

Doorways should not be used as entrances or exits. They will normally be covered by enemy fire. If a soldier must use a doorway as an exit, he should move quickly through it to his next position, staying as low as possible to avoid silhouetting himself.

Before exiting a building, the soldier selects his next covered position. He exits the doorway rapidly keeping as low as possible and moving quickly to his next position. Pre-selection of positions, speed, a low silhouette, and the use of covering fires must be emphasized in exiting doorways.

EXITING A DOORWAY



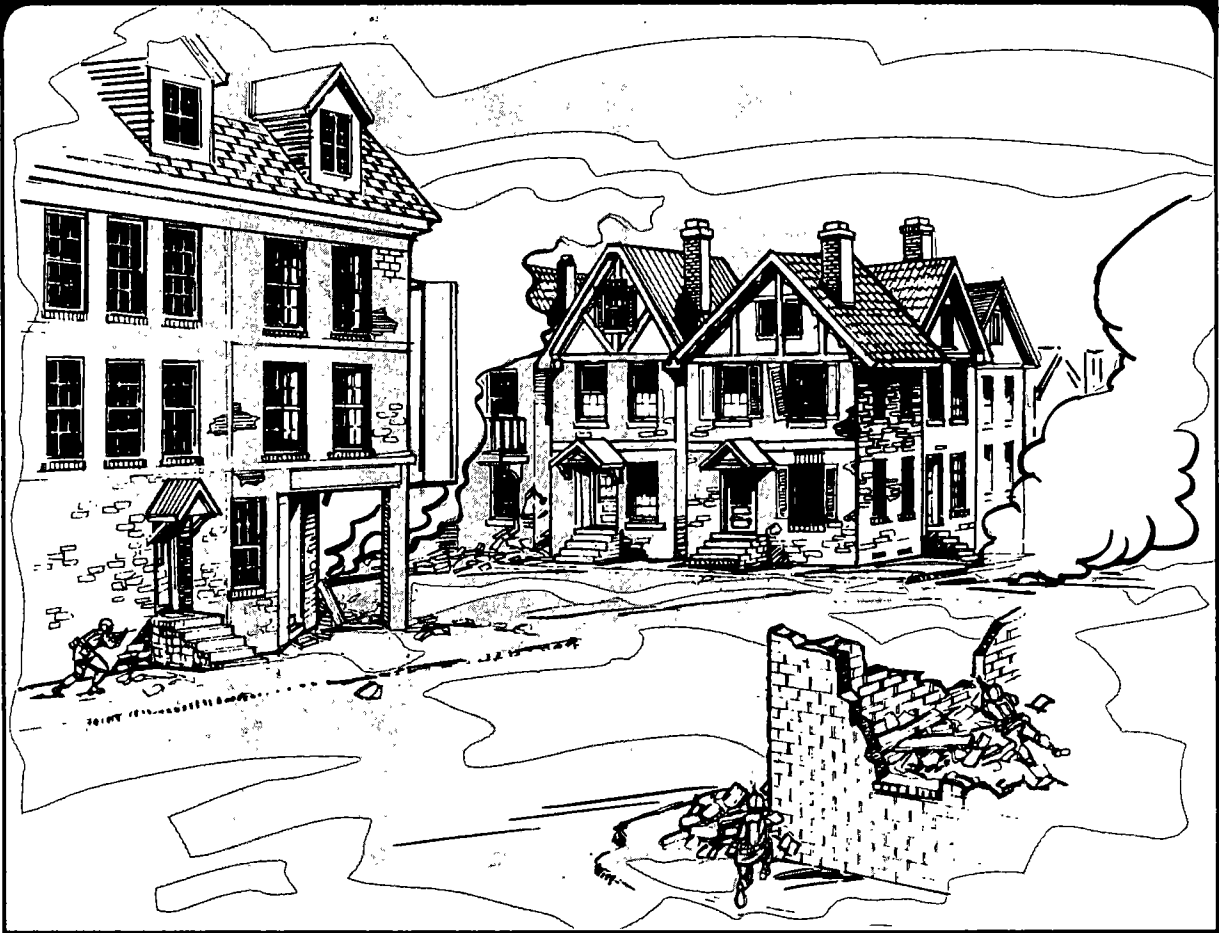
MOVING PARALLEL TO A BUILDING

At times, it may not be possible to use the inside of buildings for a route of advance, and individuals and small units will be required to move on the outside of the buildings. In doing so, smoke and covering fires should be used liberally to conceal the movement, and available cover and concealment must be used wherever possible.

In correctly moving on the outside of a building, the soldier hugs the side of the building, stays in the shadows, presents a low silhouette, and moves rapidly to his next position. It would be very hard for an enemy gunner inside the building to hit the soldier without exposing himself to fire from other

squad members covering the soldier's movement. Furthermore, it would be hard for an enemy gunner farther down the alley to detect and engage the soldier. When selecting the next position, the soldier must take full advantage of the cover and concealment available to him.

METHOD OF MOVEMENT



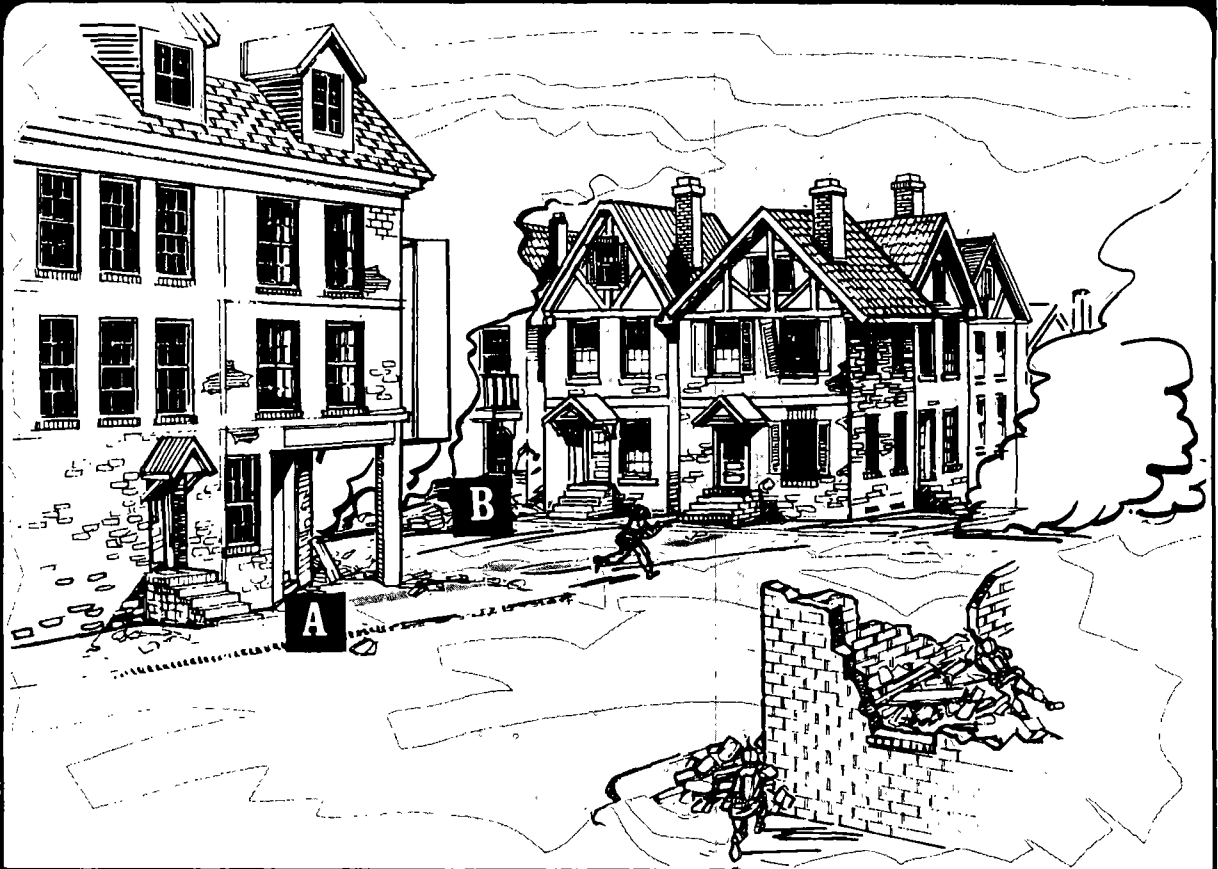
CROSSING OPEN AREAS

As stated previously, open areas, such as streets, alleys, and parks, should be avoided whenever possible. They are natural kill zones for enemy crew-served weapons. This does not mean, however, that they cannot be crossed. They can be crossed safely if certain

The most common mistake in crossing an open area is crossing diagonally from one point to another. In so doing, the soldier exposes himself to enemy fire for too long.

In using the correct procedure for crossing an open area, the soldier employs smoke between buildings to conceal his movement. Also, he does not cross diagonally from point A to point B. Instead, he runs the shortest distance between the buildings, then moves along the far building to point B. By so doing, he reduces the time he is exposed to enemy fire.

SELECTING THE NEXT POSITION



MOVING AS A FIRE TEAM

Before moving to another position, a soldier should make a visual reconnaissance and select the position that will give him the best cover and concealment. At the same time, he should select the route that he will take to get to that position. He must take care to use existing cover and concealment. Rapid movement and the use of smoke and supporting fire will also improve his chances of survival.

Moving as a fire team, from building to building or between buildings, presents a problem because a fire team presents a large target if the proper techniques of movement are not used. When moving from the corner of one building to another building, the fire team **should not** move across the open area one man at a time. The proper technique is to move in a group.

THE PROPER TECHNIQUE OF MOVEMENT IN A GROUP



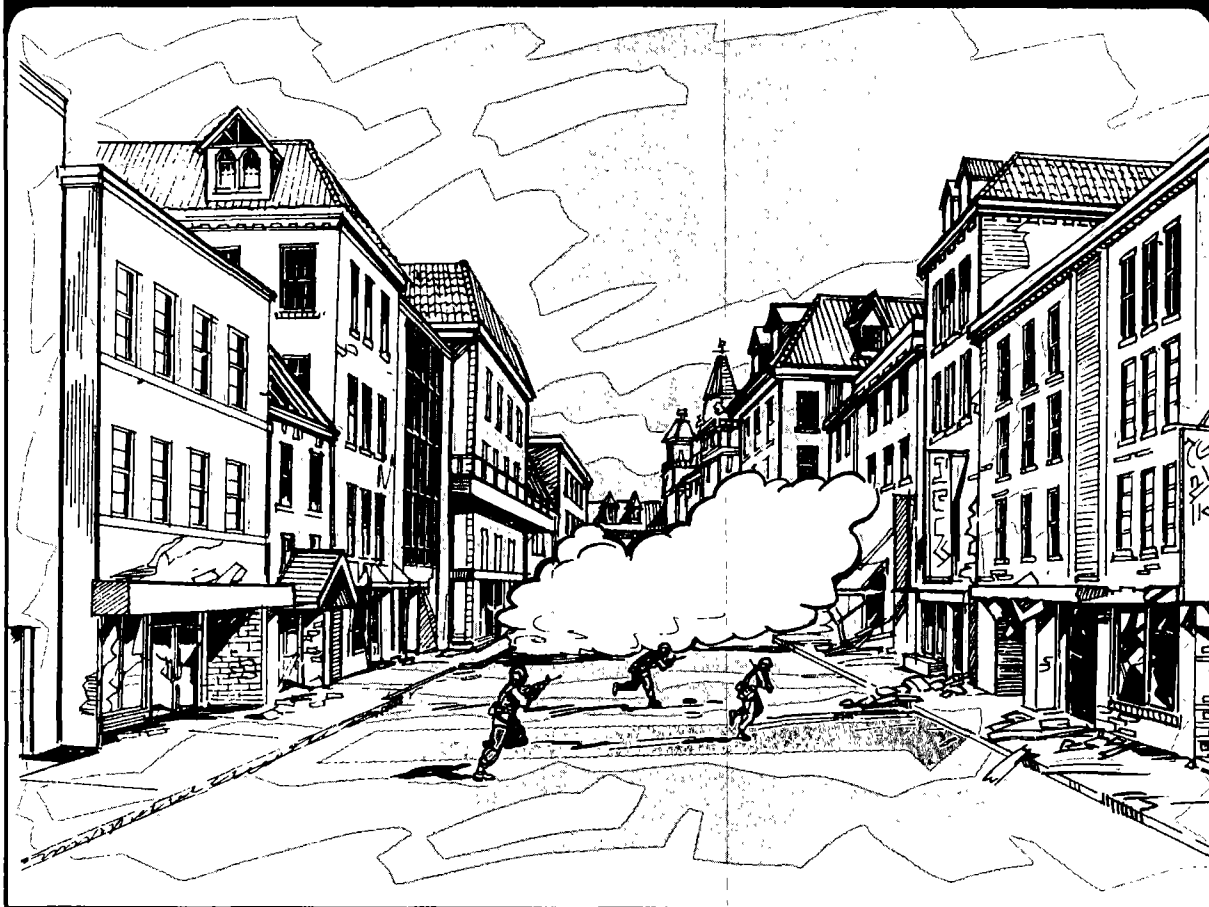
Moving in this manner cuts down the exposure time and denies the enemy opportunity for a timed shot at any one member of the fire team. In addition, smoke should be used to cover the advance when this technique of moving is used.

Moving from the side of one building to the side of another presents a similar problem, and the technique of movement employed is basically the same as the one just described. When moving in this manner, the fire team should use the building alongside of

which it is moving as cover. In moving to the adjacent building, team members should keep a distance of 3 to 5 meters between

themselves and, using a prearranged signal, make an abrupt flanking movement (*on line*) across the open area to the next building,

MOVING TO THE ADJACENT BUILDING



MOVING BETWEEN POSITIONS

When moving from position to position, each soldier must be careful not to mask his supporting fires. When he reaches his next position, the soldier must be prepared to cover the movement of other members of his fire team or squad. To do so, he must use his new position effectively. This will require him to be able to fire his weapon from either

shoulder. One of the most common errors a soldier can commit in firing from a position is firing over the top of his cover and silhouetting himself against the building to his rear, providing the enemy with an easy target. The CORRECT technique for firing from a covered position is to fire around the side of the cover and therefore reduce his exposure to the enemy.

FIRING FROM A COVERED POSITION

Another common error is for a right-handed firer to attempt to fire from the right shoulder around the left corner of a building. A person firing left-handed around the left corner of a building can take better advantage of the cover afforded by the building.

SHOOTING LEFTHANDED AROUND THE CORNER OF A BUILDING

MOVING INSIDE BUILDINGS

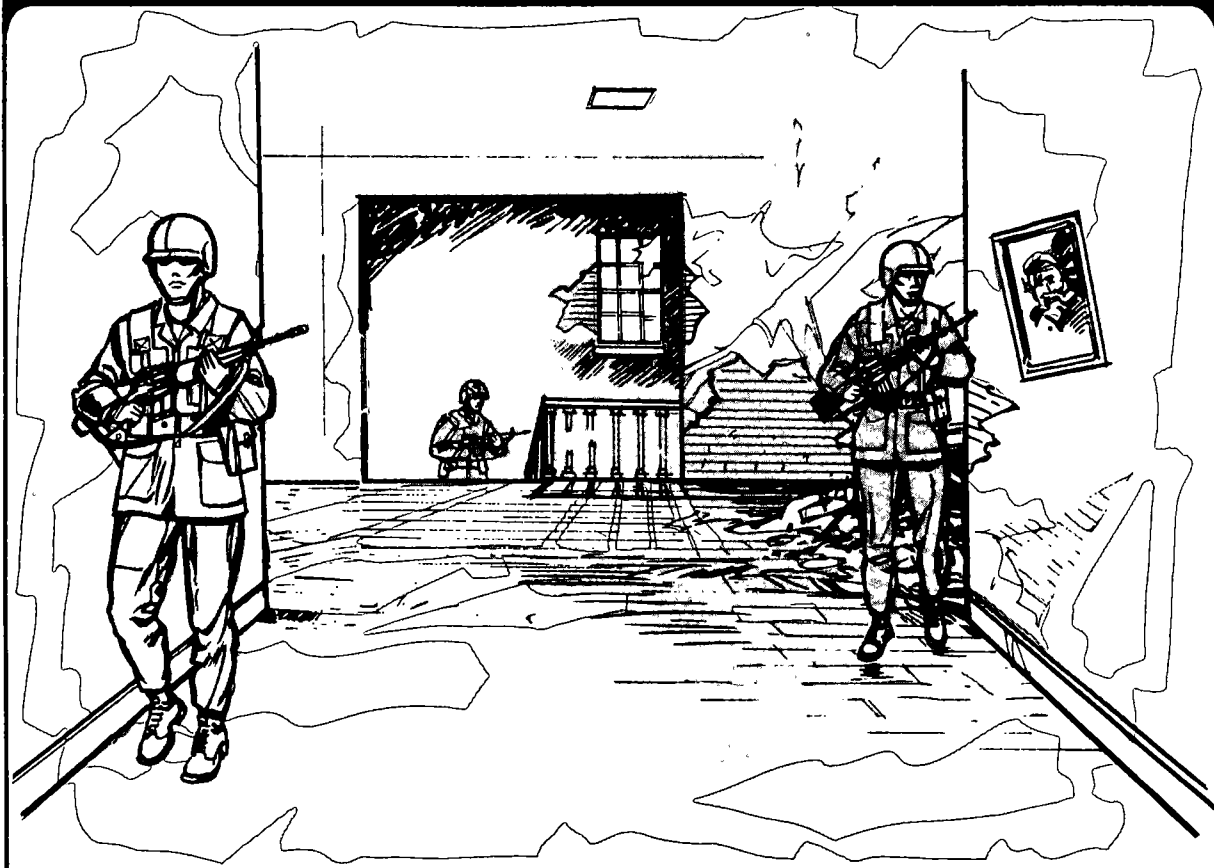
When moving within a building that is under attack, soldiers should avoid silhouetting themselves in doors and windows.

MOVING WITHIN A BUILDING THAT IS UNDER ATTACK



If forced to use a hallway, soldiers should avoid presenting a large target to the enemy. They should hug the wall and get out of the hallway as soon as possible.

HALLWAY PROCEDURES

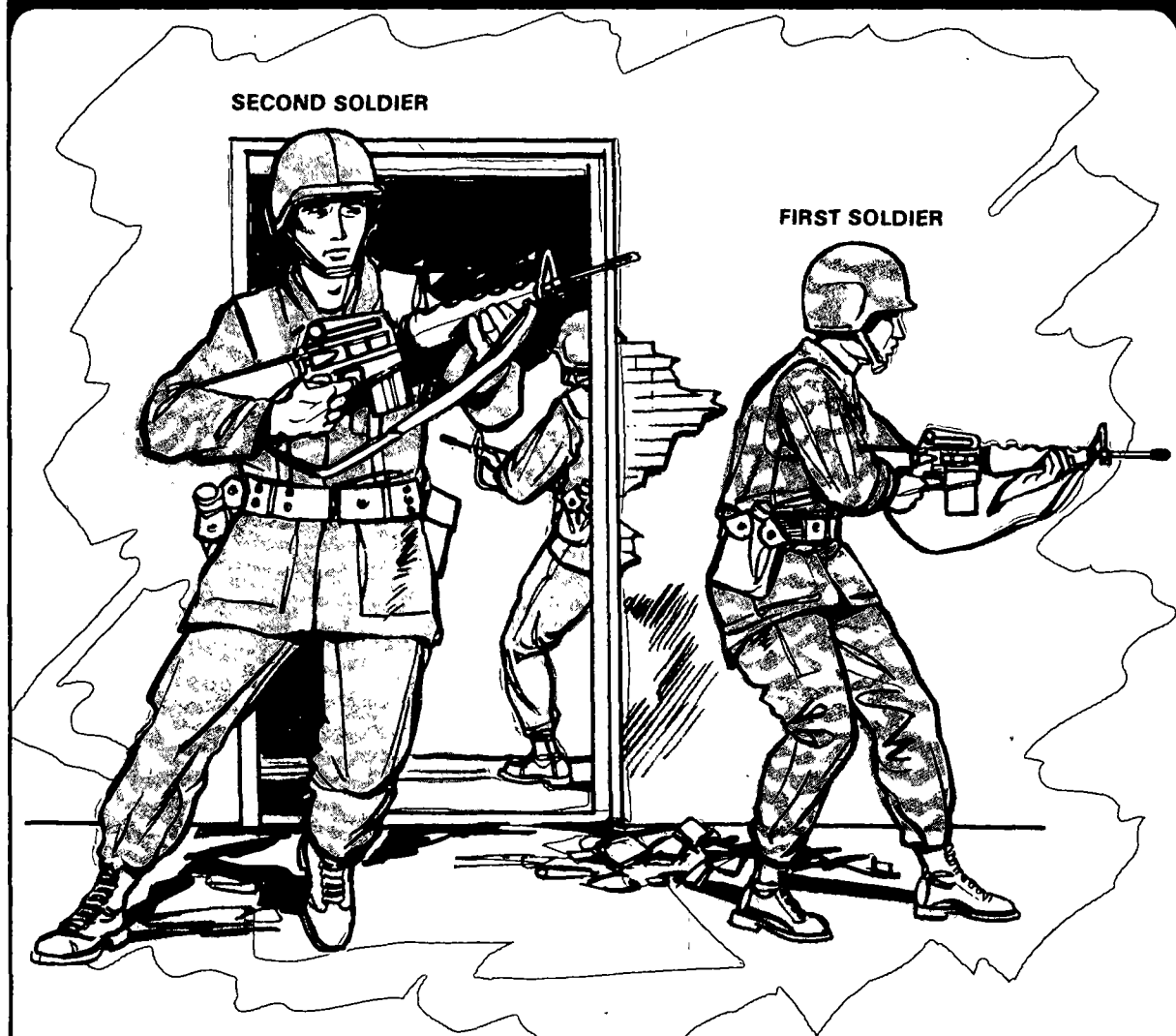


Watch for boobytraps. The enemy often boobytraps windows and doors. When entering a room, avoid using the door handle; instead, fire a short burst of automatic fire through the door and then kick it open. If boobytraps are detected, they should be marked, reported, and bypassed.

Use hand grenades. Before entering each room, cook off a hand grenade and throw it in. (Be careful of thin walls and floors. Fragments from hand grenades may even injure soldiers outside the room.)

Get in fast; fire automatic. As soon as the hand grenade goes off, rush into the room as fast as possible. The first man into the room backs quickly against a near wall where he can observe the entire room. He should engage any targets with short bursts of automatic fire. The second man into the room systematically searches it. Meanwhile, the support party, in position outside the room being cleared, provides outside security for the men inside.

PROCEDURES FOR THE FIRST MAN ENTERING A ROOM



Use voice alerts. Voice alerts and signals within the assault team are extremely important. Always let others in the assault team know where you are and what you are doing. Once a room has been cleared, the assault party yells, "CLEAR," to inform the support party. Before leaving the room and rejoining the support party, the assault party yells, "COMING OUT." When moving up or down a staircase, the assault party yells,

"COMING UP" or "COMING DOWN."

Use mouseholes. A mousehole is a hole about 2 feet wide blown or cut through a wall as an entrance into a room. Mouseholes are safer entrances than doors, which should be avoided. Doors are easy to boobytrap; therefore, the assault party enters through a mousehole. As with any entry, throw a hand grenade in first.

ENTERING THROUGH A MOUSEHOLE



ENTRY TECHNIQUES

When entering a building in urban combat, a soldier must be careful to enter with minimum exposure. A soldier entering a building must:

- Select the entry point before moving toward the building.
- Avoid windows and doors.
- Use smoke to conceal his advance to the building.
- Make new entrances by using demolitions, tank rounds, etc.
- Precede his entry with a grenade.
- Enter right after the grenade explodes.
- Enter covered by one of his buddies.

ENTRY AT UPPER LEVELS

Clearing a building from the top down is the preferred method, if the terrain and tactical situation permit. Clearing or defending a building is easier from an upper story. Gravity and the building's layout become assets instead of liabilities when throwing hand grenades and when moving from floor to floor. A defending enemy who is forced to the top may be cornered and fight desperately or escape over the roofs, while one who is forced down to the ground level may be tempted to withdraw from the building, thus exposing himself to friendly fires from the outside.

Various means, such as ladders, drain-pipes, vines, helicopters, or the roofs and windows of adjoining buildings, may be used to reach the top floor or roof of a building. In some cases, one soldier can climb onto the shoulders of another and reach high enough

to pull himself up. Scaling ropes are also useful. By attaching a grappling hook to the end of a scaling rope, a rifleman can scale a wall, swing from one building to another, or gain entrance through an upstairs window.

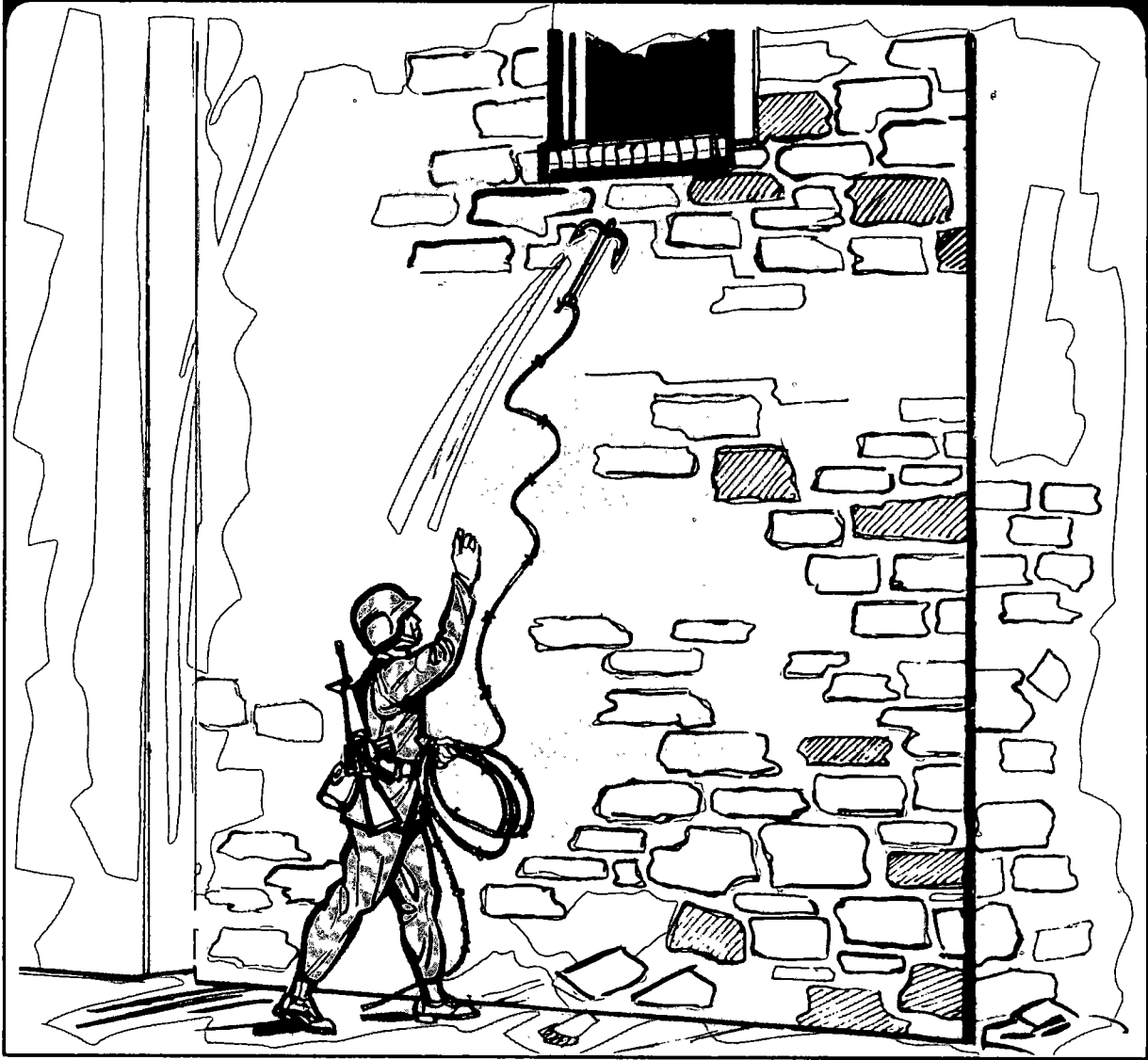
THE GRAPPLING HOOK TECHNIQUE

Select a suitable grappling hook and rope. The grappling hook should be sturdy, portable, easily thrown, and equipped with hooks which are likely to hold inside a window. The scaling rope should be 5/8 to 1 inch in diameter and long enough to reach the targeted window. Knots tied in the rope at 1-foot intervals will make climbing easier.

When throwing the grappling hook, stand as close to the building as possible. The closer the thrower stands, the less he is exposed to enemy fires from different directions. At close range, moreover, the hook has to be thrown less horizontal distance.

When throwing a grappling hook, allow the rope to pay out freely. The thrower should have enough rope to reach his target. In his throwing hand, he should have the hook and a few coils of rope. The remainder of the rope, in loose coils, should be in his other hand. The throw itself should be a gentle, even, upward lob of the hook, with the thrower's other hand releasing the rope as it pays out.

Insure that the grappling hook has a solid hold before beginning to climb. Once the grappling hook is inside the window (or on the roof), the climber should pull on the rope to obtain a good hold. When using a window, the hook should be pulled to one corner to insure the chances of a good "bite" and to reduce exposure to lower windows during the climb.

THROWING THE HOOK AT CLOSE RANGE**OTHER SCALING
TECHNIQUES**

When forced to scale a wall during exposure to enemy fire, use all possible concealment. Smoke and diversionary measures will improve the chances of successful exposed movements. When using smoke for concealment, plan for wind direction and use enough smoke. Use

measures such as weapons firing, shouting, and fake movement to distract the enemy.

Soldiers moving from building to building and climbing buildings should be covered by friendly fire. Areas between buildings generally offer good fields of fire to

the enemy. A soldier scaling an outside wall is particularly vulnerable to enemy sniper fire. Properly positioned friendly weapons can suppress and eliminate enemy fire. The M203 grenade launcher in particular is an excellent weapon for clearing enemy snipers from rooms.

CLEARING ENEMY SNIPERS WITH M203 GRENADE LAUNCHER

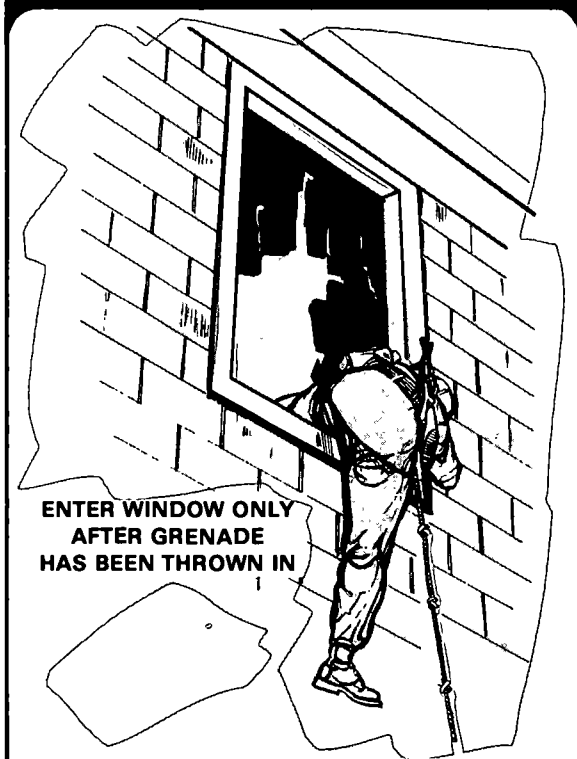


Soldiers scaling walls should avoid silhouetting themselves in windows of uncleared rooms. A soldier scaling an outside wall using a rope should avoid exposing himself to enemy fires from a lower window. The climber should clear the lower room with a hand grenade before ascending outside the window. The safety pins on grenades used for clearing rooms during the ascent should be loosened so the climber has to free only one

hand to throw them. The objective upper-story window should also be entered only after a hand grenade has been thrown in.

Enter the objective window with a low silhouette. Entry can be head first; however, a preferred method is to hook a leg over the window sill and enter sideways, straddling the ledge.

ENTERING THE OBJECTIVE WINDOW



ENTER WINDOW ONLY
AFTER GRENADE
HAS BEEN THROWN IN

RAPPELLING

Rappelling is a combat technique soldiers can use to descend from the roof of a tall building into a window. Urban fighters should be familiar with the basic seat-hip rappel.

To set up the rappel site be sure the rope reaches the bottom.

Test the anchor point carefully and inspect to see that the rope will run around it when pulled from below. Friction points over the wall's edge must be padded to prevent the rope from being cut.

THE SEAT-HIP RAPPEL

In this rappel, the main friction is taken up by a snaplink inserted in a sling rope seat fastened to the body. This is a fast method of getting down a wall; it is also used in rappelling from helicopters.

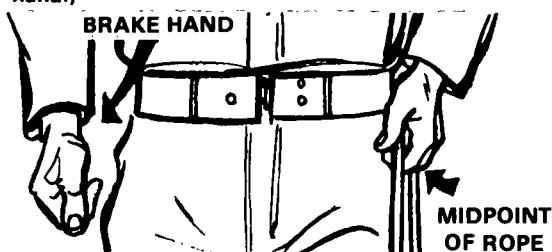
RAPPELLING



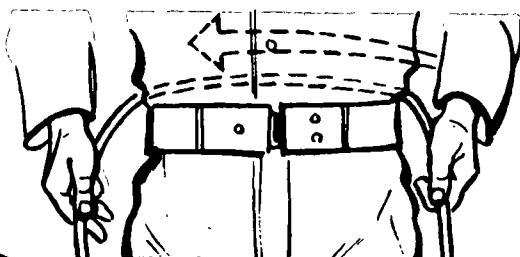
Before attaching the seat and hook snaplink, tuck the fatigue jacket into the trousers, because loose clothing or equipment around the waist may be pulled into the snaplink, locking the rappel.

TYING THE KNOTS

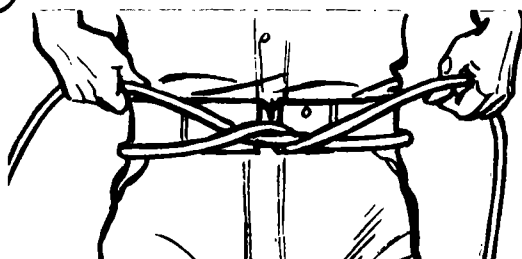
- 1 Place the center of the sling rope on the hip opposite to the brake hand. (For right-handed soldiers, the right hand is the brake hand. For left-handed soldiers, the left hand is the brake hand.)



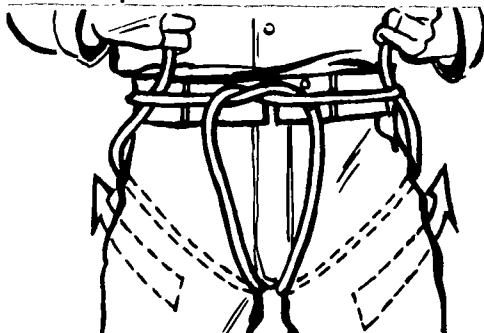
- 2 Wrap the rope around the waist (keeping the center of the rope on the hip).



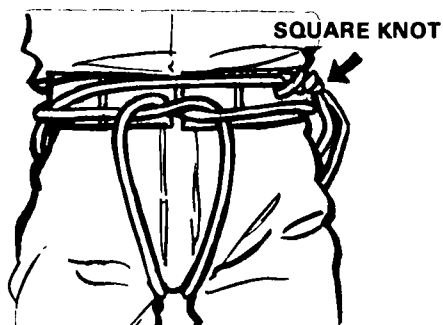
- 3 Tie an overhand knot in front of the body.



- 4 Bring the ends of the rope between the legs (front to rear), around the legs, and under the waist loop.

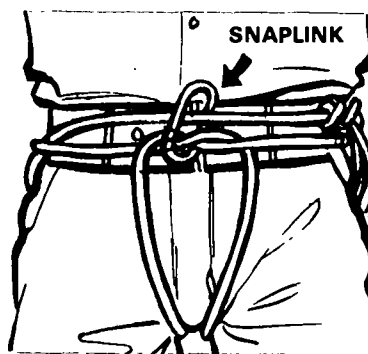


- 5 Tie the ends with a square knot and two half-hitches on the side opposite the brake hand. Put the loose ends into a pocket.

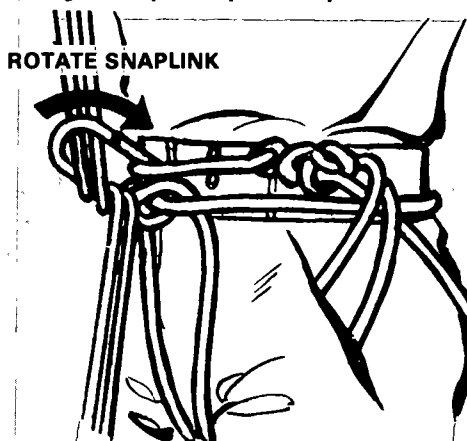


- 6 Place the snaplink through the single rope around the waist and through the two ropes which form the overhand knot.

Insert the snaplink with the gate down and the opening toward the body.



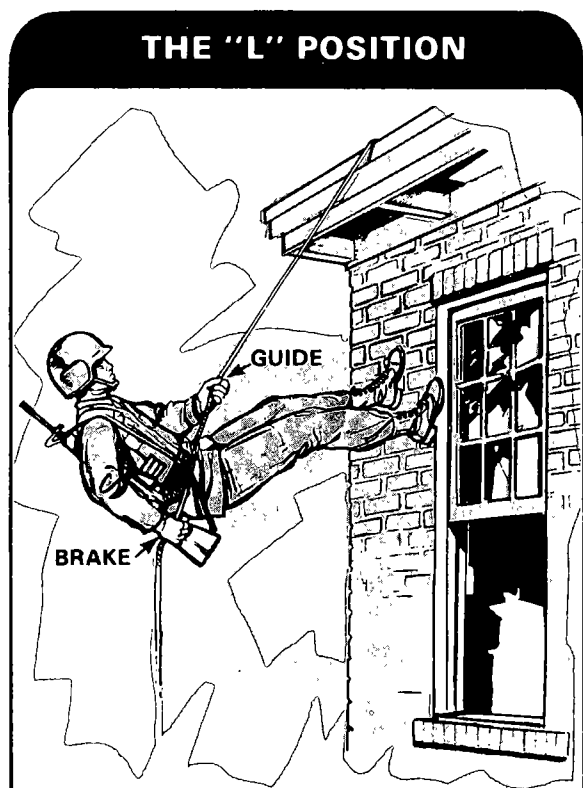
- 7 Then rotate the snaplink one-half turn so that the gate is up and opens away from the body.



To rappel, put on leather work gloves and stand to one side of the ropes (*when braking with the right hand, stand on the left side; when braking with the left hand, stand on the right*). Snap the ropes into the snaplink.

Take up some slack in the ropes **between the snaplink and the anchor point** and bring the ropes underneath, around, and over the snaplink, snapping into the ropes again. (*This results in a turn of the ropes around the solid shaft of the snaplink that does not cross itself when under tension. When using a single rope, make two turns.*)

Facing the anchor point, back carefully over the edge of the obstacle and lean well out, almost at a right angle to the surface (*the "L" position*). Give the signal, "ON RAPPEL." If the tactical situation requires silence, use prearranged signals.



Go down using the upper hand as a guide and the lower hand to brake. Hold the braking hand behind and slightly above the hip. Brake by closing the hand and pressing the rope against the body.

Continue to "walk" down, looking at the ground over the braking hand. To go faster, push off the wall with a slight hop and go down in "bounds" with the brake hand extended toward the ground.

Give the signal, "OFF RAPPEL," upon reaching the bottom, and straighten the ropes. (*When silence is required, use a prearranged signal of pulling on the ropes.*)

When the last man is down, recover the rope by pulling on one side of the double rope. Pulling it smoothly will prevent the rising end from whipping around and binding the rope. Stand clear of the falling rope.

ENTRY AT LOWER LEVELS

Whenever possible, buildings should be cleared from the top down; however, it may be impossible to enter a building at the top. Then, entry at the bottom or lower level may be the only course of action. When entering a building at the lower level, soldiers should avoid entry through windows and doors as much as possible, since both can be easily boobytrapped and are probably covered by enemy fire.

Ideally, when entering at lower levels, it is preferable to use demolitions, artillery, tank fire, antitank weapons fire, or similar means to create a new entrance. By making a new entrance, soldiers avoid any boobytraps. Quick entry is required to follow up the effects of the blast and concussion.

In a building where the only entrance is through a window or door, extra precautions should be taken prior to entering. Supporting fire should be directed at the window or door.

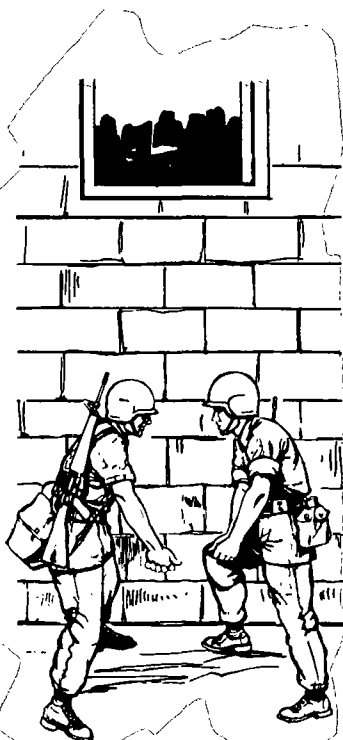
If no supporting fire is available, the soldiers should fire LAWs at the window or door.

Before entering, a soldier should throw a cooked-off hand grenade into the new entrance to reinforce the effects of the original blast. When making a new entrance in a building, the effects of the blast on the building and adjacent buildings should be considered. If there is the possibility of a fire in adjacent buildings, coordination must be

made with adjacent units and permission granted prior to the start of the operation. In wooden frame buildings, the blast may cause the building to collapse. In stone, brick, or cement buildings, the supporting fires should be aimed at the corner of the building or at weak points in the building construction.

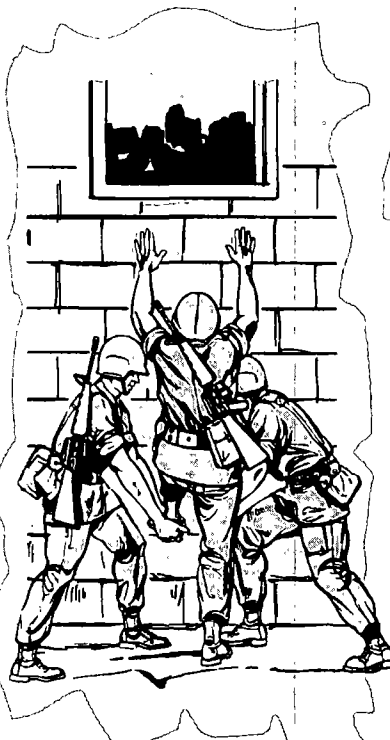
Specific lower-level entry techniques are shown below:

THE TWO-MAN LIFT, UNSUPPORTED



1

TWO MEN BEND OVER, FACING ONE ANOTHER WITH THEIR HANDS CUPPED TOGETHER.



2

A THIRD SOLDIER RAISES HIS FEET INTO THE CUPPED HANDS OF THE TWO OTHERS.



3

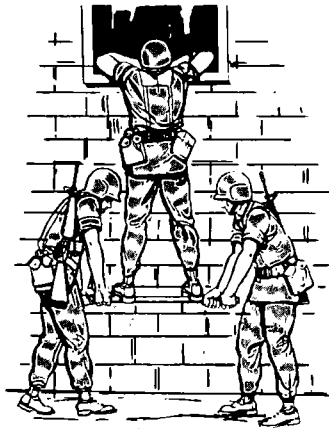
ONCE BOTH FEET ARE IN THE CUPPED HANDS, THE TWO MEN PUSH UP ON THE THIRD MAN'S FEET, LIFTING HIM UPWARD AND INTO THE ENTRANCE.

THE TWO-MAN LIFT, SUPPORTED



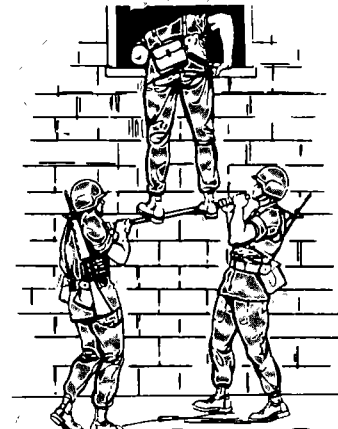
1

TWO MEN STAND FACING ONE ANOTHER, HOLDING A SUPPORT (A BOARD OR BAR).



2

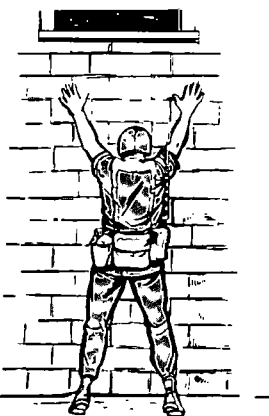
ANOTHER SOLDIER STEPS ONTO THE SUPPORT.



3

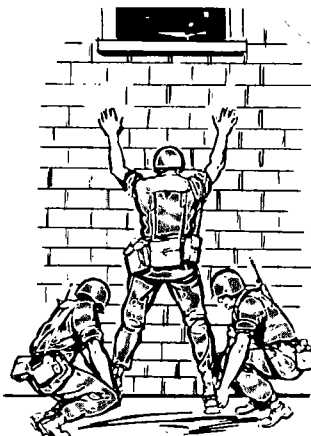
ONCE BOTH FEET ARE ON THE SUPPORT, THE TWO MEN RAISE IT, LIFTING THE THIRD MAN UPWARD AND INTO THE ENTRANCE.

THE TWO-MAN LIFT WITH HEELS RAISED



1

ONE MAN, STANDING WITH PALMS FLAT AGAINST THE BUILDING, FEET OUT FROM THE BUILDING ABOUT 2 FEET WITH HEELS RAISED, IS LIFTED BY TWO MEN.



2

TWO MEN BEND OVER FACING EACH OTHER. WITH CUPPED HANDS, THEY EACH GRASP A HEEL OF THE THIRD MAN, AND WITH ONE QUICK MOVE LIFT HIM UP AND INTO THE ENTRANCE.



3

THE ONE-MAN LIFT

ONE MAN WITH HIS BACK OR SIDE BRACED AGAINST THE BUILDING AND WITH HIS HANDS CUPPED ALLOWS ANOTHER MAN TO RAISE ONE FOOT UP INTO HIS CUPPED HANDS, AND THEN LIFTS HIM UP AND INTO THE ENTRANCE.



1



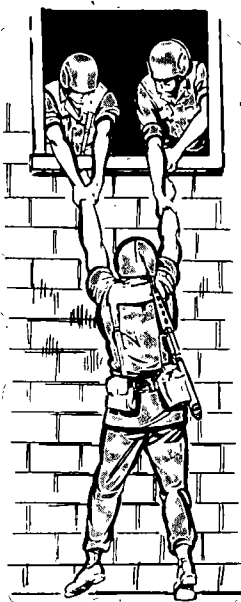
2



3

THE TWO-MAN PULL

WHEN THE FIRST TWO SOLDIERS ARE INSIDE THE BUILDING AND OTHER SOLDIERS SEEK ENTRANCE, THE TWO ALREADY INSIDE MAY ASSIST THE OTHERS BY PULLING THEM UP INTO THE BUILDING.



1



2



3

USE OF HAND GRENADES

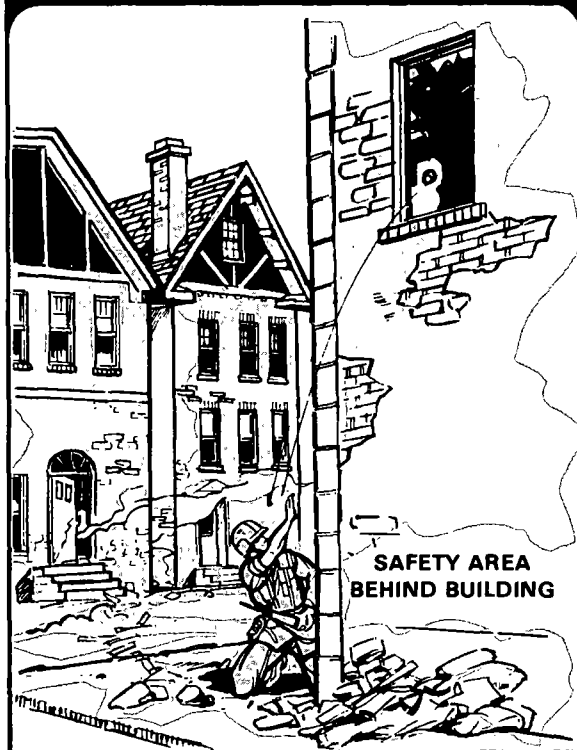
Combat in built-up areas (*particularly during the attack*) calls for the extensive use of hand grenades because each room of a building must be cleared. The soldier should throw a grenade before negotiating each room, staircase, mousehole, etc. That requires, in many cases, the use of both the left and right hand and the use of both the overhand and underhand methods of throwing the grenades. In most cases, the grenade should be allowed to cook off for 2 seconds to keep the enemy from grabbing the grenade and tossing it back.

The construction material used in the building being cleared also influences the use of grenades. If the walls of a building are made of thin material, such as sheetrock or thin plyboard, the soldier must either lie flat on the floor with his helmet pointing towards the area of detonation, or move completely away from any wall which grenade fragments might penetrate.

Soldiers should throw grenades in an opening before entering a building, to eliminate any enemy that might be near the entrance. The best method of putting a grenade in an upper-story opening, especially in high buildings, is to use the M203 grenade launcher, a more accurate weapon than the hand grenade.

There will be occasions, however, where a hand grenade will have to be used. The soldier throwing the grenade should stand close to the building, using it for cover. At the same time, he and the remainder of the element should have a prearranged area for safety to move to in case the grenade does not go through the window, but falls back to the ground.

PUTTING A GRENADE IN AN UPPER-STORY OPENING



The soldier throwing the grenade should allow the grenade to cook off for at least 2 seconds, and then step out far enough to lob the grenade in the high-level opening. The weapon should be kept in the nonthrowing hand so it can be used if the need arises. Under no circumstances should the weapon be laid either outside or inside the building. Once the grenade has been thrown into the opening, assaulting troops must move swiftly to enter the building.

In the correct method for throwing a grenade through a window, the soldier stands close to the building, using it for cover.

THROWING A HAND GRENADE THROUGH A WINDOW

**TAKE COVER
AFTER THROWING
GRENADE**

WARNING

AFTER THROWING THE GRENADE, THE SOLDIER MUST TAKE COVER. THE GRENADE MAY BOUNCE BACK OR BE THROWN BACK, OR THE ENEMY MAY SHOOT AT HIM.

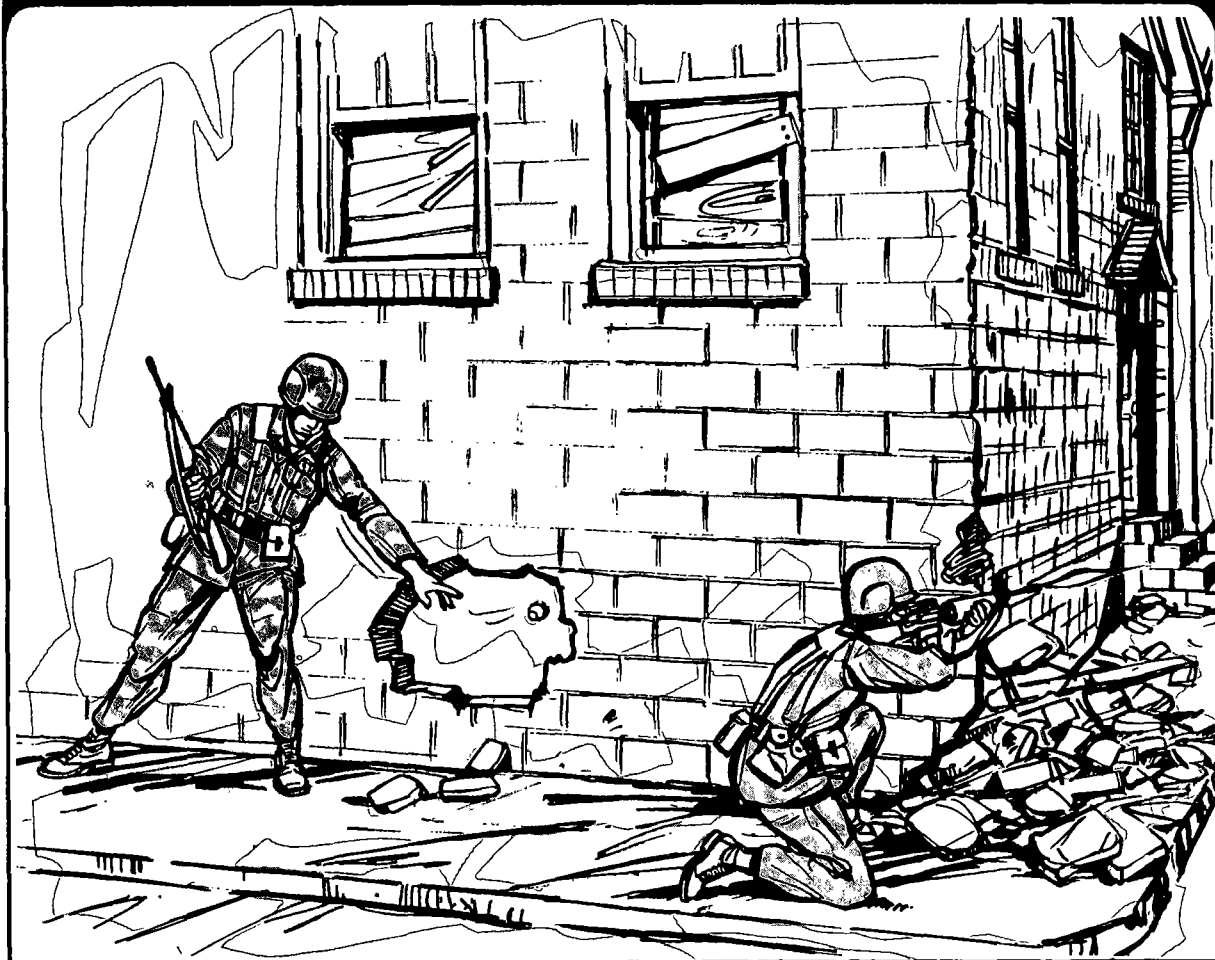
If entering the building by the stairs, which is not the best method, look for boobytraps. Then, throw a grenade through

the stairwell door, let it detonate, and move swiftly inside.

The soldier can use the staircase itself for cover.

The best way to enter a building is to breach the exterior wall. Again, a grenade must be thrown through the hole using all available cover.

The lower corner of the building may be used for cover.

USING THE LOWER CORNER OF A BUILDING FOR COVER

When a door is the only means of entrance into a room, soldiers must beware of fire from enemy soldiers within the room and boobytraps. Doors can be opened by hand, by kicking, by shooting, or by use of pioneer tools such as an ax. When opening a door, soldiers should not expose themselves to firers through the door. When doors are opened by hand, it should be with a two-man team. Each soldier should stay close to one side of the doorway and should not expose himself in the open doorframe. However, it is better to open the door by kicking or shooting it open. When kicking, one man stands to the side while the other kicks.

KICKING OPEN A DOOR

Once the door is open, a hand grenade is tossed in. Once the grenade explodes, soldiers move in while firing short bursts of automatic fire. If the doorframe is too strong to allow for kicking the door open, it will be necessary to shoot the door open or break it down with an ax. The procedure for entering the room is the same as for kicking the door open.

Another way to enter a room is to blast mouseholes with demolitions. In moving from room to room through mouseholes, use grenades as in moving through doorways. As the soldier enters the mousehole he should not silhouette himself, but should use the floor or adjacent wall for cover.

While clearing the bottom floor of a building, troops may encounter stairs. Stairs, like the rooms of the building, must be cleared. Here again, grenades play an important role.

To climb the stairs, a soldier should first check for boobytraps, then toss a grenade to the head of the stairs. Once the grenade has detonated, another should be thrown over and behind the staircase banister into the hallway to take care of any enemy lurking to the rear of the stairs. The proper technique for this situation is to use the staircase for cover, and an underhand throw to reduce the risk that the grenade will bounce and roll back down the stairs.

TOSSING A GRENADE UP A STAIRWAY

After the stairs have been cleared, assaulting forces move to the top floor and clear it, using the methods just described. Upon clearing the top floor, those forces move back downstairs to clear the center and bottom floors again and to continue with the missions.

Because many hand grenades are used, a continuous supply of grenades must be readily available to any force having the mission of clearing buildings within a built-up area.

WARNING

COOKING OFF HAND GRENADES CAN BE DANGEROUS UNLESS PROPERLY DONE. TO COOK OFF A HAND GRENADE, REMOVE YOUR THUMB FROM THE SAFETY LEVER AND LET THE LEVER ROTATE OUT AND AWAY FROM THE GRENADE BODY. THEN COUNT, "ONE THOUSAND ONE, ONE THOUSAND TWO," AND THROW THE GRENADE. (SEE FM 23-30, PARA 37 AND 43, FOR MORE ON COOK-OFF TECHNIQUES.)

SELECTION AND USE OF FIRING POSITIONS

Whether a unit is attacking, defending, or conducting retrograde operations, its success or failure will depend upon the ability of the individual soldier to place accurate fire upon the enemy with the least possible exposure to return fire. Consequently, the soldier must constantly seek firing positions, and he must use them properly when he finds them.

There are two types of firing positions: **HASTY** and **PREPARED**.

HASTY POSITIONS

A **hasty firing position** is normally occupied in the attack or the early stages of the defense. It is a position from which the soldier can place fire upon the enemy while using available cover to gain some degree of protection from return fire. The soldier may occupy it voluntarily, or he may be forced to occupy it due to enemy fire. In either case, the position lacks preparation prior to occupation. **Some of the more common hasty firing positions in a built-up area and techniques for occupying them are:**

- **Corners of buildings.**
- **Firing from behind walls.**
- **Firing from windows.**
- **Firing from unprepared loop-holes.**
- **Firing from the peak of a roof.**

Corners of buildings. The corner of a building provides cover for a hasty firing position, if it is used properly. The firer must be capable of firing his weapon both right and left-handed to fire around corners. A common error made in firing around corners is firing from the wrong shoulder. This exposes more of the firer's body to return fire than necessary. By firing from the proper shoulder, the firer can reduce the target exposed to enemy fire.

Another common mistake when firing around corners is firing from the standing position. The firer exposes himself at the

height the enemy would expect a target to appear, and risks exposing the entire length of his body as a target for the enemy.

Firing from behind walls. When firing from behind a wall, the soldier must fire **around** cover when possible, not **over** it. The correct technique is shown below.

FIRING AROUND COVER



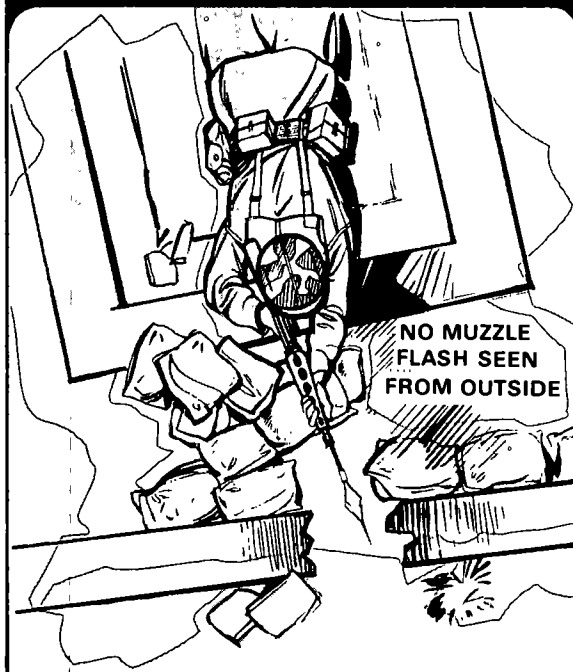
Firing from windows. In a built-up area, windows provide readily accessible firing ports. The firer must avoid firing from the standing position, as it exposes most of his body to return fire from the enemy and could silhouette him against a light-colored interior wall or a window on the other side of the building. The firer must not allow the muzzle of his weapon to protrude beyond the window; it is an obvious sign of the firer's position, especially at night when the muzzle flash can easily be observed. In using the proper method of firing from a window, the soldier is well back into the room to prevent the muzzle flash from being seen, and he is kneeling to limit exposure and avoid silhouetting himself.

FIRING FROM A WINDOW



Firing from unprepared loopholes. The soldier may fire through a hole torn in the wall and avoid the windows. He stays well back from the loophole so the muzzle does not protrude beyond the wall and the muzzle flash of the weapon is concealed.

FIRING FROM AN UNPREPARED LOOPHOLE



Firing from the peak of a roof. The peak of a roof provides a vantage point for snipers that increases their field of vision and the ranges at which they can engage targets. A chimney, a smokestack, or any other object protruding from the roof of a building can reduce the size of the target exposed, and should be used.

FIRING FROM THE PEAK OF A ROOF



When the soldier is subjected to enemy fire, and none of the positions mentioned above are available, he must still expose as little of himself as possible. When a soldier in an open area between buildings (*a street or alley*) is fired upon by an enemy in one of the buildings to his front, and no cover is available, he should lie prone, as close as possible to a building **on the same side of the open area as the enemy**. To engage the soldier, the enemy must then lean out the window and expose himself to return fire.

When no cover is available, target exposure can be reduced by:

- Firing from the prone position.
- Firing from shadows.

- Presenting no silhouette against buildings, the skyline, etc.
- Using tall grass, weeds, or shrubbery for concealment.

PREPARED POSITIONS

A prepared firing position is one built or improved to allow the firer to engage a particular area, avenue of approach, or enemy position, while reducing his exposure to return fire. Examples of prepared positions are:

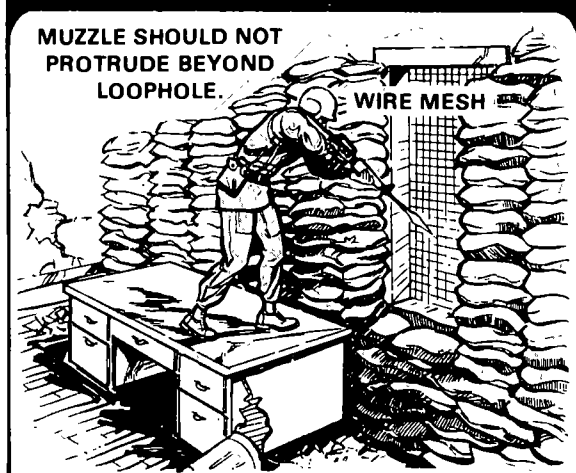
- Barricaded windows.
- Fortified loopholes.
- Sniper positions.
- Antitank positions.
- Machinegun positions.

Barricaded windows. The natural firing port provided by windows can be improved by barricading the window, leaving a small hole for the firer's use. The barricading may be done with materials torn from the interior walls of the building or any other available material. When barricading windows, avoid:

- Barricading only the windows which will be used as firing ports, as the enemy will soon determine that the barricaded windows are firing positions.
- Neat, square, or rectangular holes which will be easily identified by the enemy. A barricaded window should not have a neat, regular firing port. The window should keep its original shape. The position of the firer is difficult to detect. Firing from the bottom of the window gives the firer the advantage of the wall because the firing port is less

obvious to the enemy. Sandbags are used to reinforce the wall below the window and increase protection for the firer. All glass must be removed from the window to prevent injury to the firer from flying glass. Lace curtains, if present, will permit the firer to see out and prevent the enemy from seeing in. Wet blankets should be placed under weapons to reduce dust. Wire mesh over the window keeps the enemy from throwing in hand grenades.

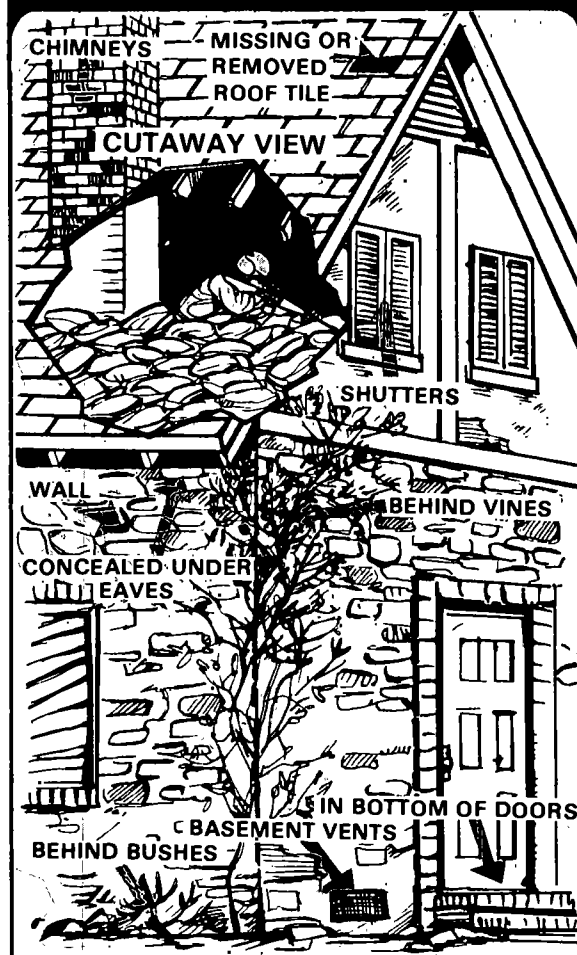
WINDOW FIRING POSITION



Prepared (fortified) loopholes. Although windows usually are good firing positions, they do not always allow the firer to engage targets in his sector. To avoid establishing a pattern of always firing from windows, another type of position is required. The prepared loophole is such an alternate position. A small hole is cut or blown in the wall to allow the firer to observe and engage targets in his sector. Sandbags are used to reinforce the walls below, around, and above the loophole. Two layers of sandbags are placed on the floor under the firer to protect him from an explosion on a lower floor (*if the position is*

on the 2d floor or higher). A table, bedstead, or other available material is used to provide overhead cover for the position to prevent injury to the firer by falling debris or from explosions above his position. A wall of sandbags, rubble, furniture, etc., should be constructed to the rear of the position to protect the firer from explosions in the room. Care should be taken to camouflage the position. This can be done by knocking other holes in the wall to make it difficult for the enemy to determine which hole the fire is coming from. Siding material should be removed from the building in several places to make loopholes less noticeable.

LOOPHOLES



Sniper positions. A chimney, or any other structure protruding through the roof of a building, provides a base from which a sniper position can be prepared. Part of the roofing material is removed to allow the sniper to fire around the chimney while standing inside the building on the beams or a platform with only his head and shoulders above the roof (*behind the chimney*). Sandbags are used on the sides of the position to protect the sniper's flanks.

When preparing a sniper position on a roof which has no protruding structure to

provide protection, the position should be prepared from underneath on the enemy side of the roof. A small piece of roofing material should be removed to allow the sniper to engage targets in his sector. The position is reinforced with sandbags and prepared so that the only sign that a position exists is the missing piece of roofing material. Other pieces of roofing should be removed to deceive the enemy as to the true sniper position. The sniper should be invisible from outside the building. Care must be taken to hide the muzzle flash from outside the building.

SNIPER POSITION



Some rules and considerations for selecting and occupying individual firing positions are:

- Make maximum use of available cover and concealment.
- Avoid firing over cover; when possible, fire around it.
- Avoid silhouetting against light-colored buildings, the skyline, etc.
- Select a new firing position carefully before leaving an old one.
- Avoid setting a pattern. Fire from both barricaded and unbarricaded windows.
- Keep exposure time to a minimum.
- Begin improving a hasty position immediately after occupation.
- Construction material for prepared positions is readily available in a built-up area.
- Positions which would provide cover at ground level may not provide cover on higher floors.

Antitank positions. The rifle squad, both in attack on and in defense of a built-up area, is frequently reinforced with attached antitank weapons. For this reason, the rifle squad leader must be able to choose good firing positions for the antitank weapons under his control.

Various principles of employing antitank weapons have universal applications:

- Make maximum use of available cover.
- Try to achieve mutual support.
- When positioning recoilless weapons, TOWs, Dragons, and LAWs, allow for the backblast.

Operating in a built-up area introduces new considerations:

- Avoid the use of windows and doors whenever possible.
- Select numerous alternate positions, particularly when the structure will not provide cover from small arms fire.
- Position weapons in the shadows, well within the building.

In attacking a built-up area, the recoilless weapon and ATGM crews are severely hampered in the selection of firing positions by the backblast of their weapons. They may not have enough time to knock out walls in buildings and clear backblast areas. They should select positions which will allow the backblast to escape, such as corner windows where the round fired goes out one window and the backblast escapes from another window. The corner of a building can be improved with sandbags to make a firing position.

CORNER FIRING POSITION



A 90-mm recoilless rifle (RCLR) crew firing from the top of a building can use the

chimney for cover. The rear of this position should be reinforced with sandbags.

90-MM RCLR CREW FIRING FROM A ROOFTOP



The recoilless weapons and ATGMs will be employed in streets and other open areas, making use of rubble, corners of buildings, destroyed vehicles, and anything else that will afford them cover. They can move along rooftops, in order to get a better angle to engage enemy armor.

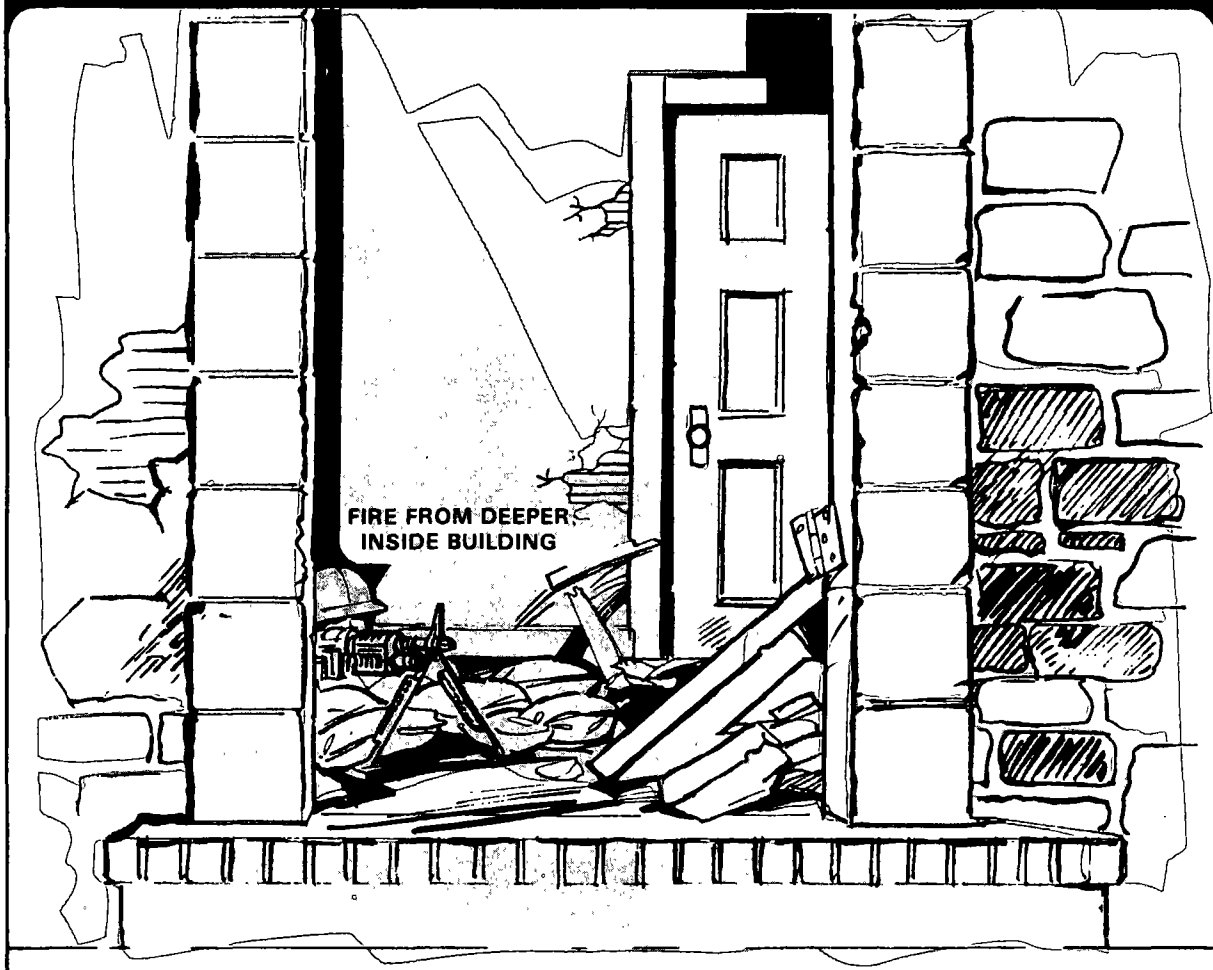
When buildings are elevated, positions can be prepared using a building for overhead cover. Insure that the backblast under the building will not damage or collapse the building or injure the crew.

PREPARED POSITION USING BUILDING FOR OVERHEAD COVER



Machinegun positions. The machinegun has no backblast, so it can be emplaced almost anywhere. In the attack, windows and doors will offer ready-made firing ports. For this reason, the enemy will normally have them under observation and fire. Whenever possible, avoid the use of windows and doors and use any openings which may have been created in the walls during the fighting. When other holes are not present, consider using small explosive charges to create loopholes. Regardless of what openings are used, keep the machinegun well within the building and in the shadows.

EMPLACEMENT OF MACHINEGUN IN A DOORWAY



USING A LOOPHOLE WITH A MACHINEGUN

Upon occupying a building, board up all windows and doors. By leaving small gaps between the slats, windows and doors can be used as good alternate firing positions.

Loopholes should be used extensively in the defense. They should not be constructed in any logical pattern, nor should they all be at floor or tabletop level. Varying their height

and location will make them hard to pinpoint and identify. Dummy loopholes, shingles knocked off, or holes cut which are not intended to be used as firing positions will aid in the deception. Loopholes located behind shubbery, under doorjambs, and under the eaves of a building will be hard to detect. In the defense, as in the offense, a firing position can be constructed using the building for overhead cover.

SANDBAGGED MACHINEGUN EMPLACEMENT UNDER A BUILDING

Increased fields of fire can be obtained by locating the machinegun in the corner of the building. Available materials, such as desks, overstuffed chairs, couches, and other items of furniture, should be integrated into the construction of bunkers to add cover.

CORNER MACHINEGUN BUNKER



Although grazing fire is desirable when employing the machinegun, there will be many times when it will be impractical, if not impossible. Where destroyed vehicles, rubble, and other obstructions restrict the fields of grazing fire, consider elevating the gun to where it can fire over the obstacles. In that case, firing from loopholes on the second or third story may be called for. A firing platform under the roof can be built and a loophole constructed. Again, conceal the exact location of the position by knocking off shingles in isolated patches all over the roof.

FIRING PLATFORM UNDER ROOF



DEFENSE AGAINST FLAME

Incendiary ammunition and special weapons and the ease with which incendiary devices can be constructed from gasoline and other flammables make fire a very real threat in urban operations. During defensive operations, firefighting should be a primary concern. The proper steps must be taken to minimize the risk of a fire that could make a chosen position indefensible.

MINIMIZE THE CHANCE OF EXPOSURE

Choose or create positions which do not have large openings and which provide as much built-in cover as possible, in order to prevent incendiary ammunition from penetrating the position.

MINIMIZE THE COMBUSTIBILITY OF SELECTED POSITIONS

Remove all unnecessary flammable materials, including ammunition boxes, furniture, rugs, newspapers, curtains, and so on. Insure that all electricity and gas coming into the building is shut off.

IMPROVE THE POSITION

A building of concrete-block construction, with concrete floors and a tin roof, is an ideal place for a position; however, most buildings have wooden floors or subfloors, wooden rafters, and wooden inner walls, which means steps must be taken to improve the position. Inner walls can be taken out and replaced with blankets to resemble walls from the outside. Sand should be spread on floors and in attics to a depth of 2 inches to retard fire.

BE PREPARED TO FIGHT THE FIRE

Pre-position firefighting gear, which for the individual soldier means entrenching

tools, helmets, sand, and blankets. Those items can be supplemented with fire extinguishers from vehicles not in use. All available firefighting equipment should be pre-positioned so it can be used during actual combat without waiting for a lull in the fighting.

PLAN ESCAPE ROUTES

Fire is so destructive that it can easily overwhelm personnel in spite of extraordinary precautions. Routes of withdrawal and a priority of evacuation from fighting positions must be planned to allow individuals to exit through areas that will be relatively free of combustible material and will provide cover from enemy direct fire.

PLAN FOR FIRST AID REQUIREMENTS

The confined space and large amounts of combustible material in built-up areas will influence the enemy to use incendiary devices. Two major first aid problems will be more urgent than in the open battlefield. The first is burns, which can be prevented by wearing the appropriate clothing. Wear field jackets and field pants, since they are less flammable than the new stay-pressed fatigues and will provide greater standoff between the flame and the skin. The second major medical problem is smoke and flame inhalation and lack of oxygen, which can easily occur in buildings and which render the victim combat ineffective. Although there is little defense against flame inhalation and lack of oxygen, smoke inhalation can be greatly reduced by the wearing of the individual protective mask. Regardless of the fire hazard, defensive planning for urban combat must include the medics. The medics must be able to reach victims and their equipment, and must have extra supplies for the treatment of burns and inhalation injuries.

Offensive operations also require planning for firefighting. The number of threat personnel is nowhere near as great during offensive operations as during defensive ones; however, the success of the mission can easily be threatened by fire. Poorly planned use of incendiary munitions may make fires so extensive that they will become obstacles to offensive operations. Additionally, the enemy may use fire to cover his withdrawal and create obstacles and barriers to the attacker.

OFFENSIVE FLAME OPERATIONS

When planning offensive operations, the attacker must consider all available weapons. The best two for creating fires are the M202 rocket launcher, in the infantry battalion headquarters company, and the flamethrower, which is currently out of inventory but can be obtained by special request through logistics channels. The flamethrower is the better training weapon, since water can be substituted for the flame, and the effect of the weapon can be measured by the penetration of the water. There is currently no available training round for the M202. When using fire in an operation, insure that firefighting support is available to avoid using soldiers to fight fires. Choose targets carefully during the initial planning to avoid accidentally destroying critical facilities within the built-up area. When using flame operations in an urban area, priorities must be established to determine which critical installations (*hospitals, power stations, radio stations, and historical landmarks*) should have primary firefighting support if they do catch on fire.

INDIVIDUAL FIREFIGHTING

Every soldier participating in the attack must be ready to deal with fire. The normal

firefighting equipment available to the individual includes the entrenching tool, the helmet (*for carrying sand or water*), and blankets (*for snuffing out small fires*). Additionally, fire extinguishers are available on each of the vehicles supporting the attack.

CAMOUFLAGE

To survive and win in urban combat, cover and concealment must be supplemented by camouflage.

To properly camouflage men, carriers, and equipment, **STUDY** the surroundings in the area. Make positions look like the surrounding terrain. If there is no damage to buildings, do not make loopholes for firing ports. If the area has no bricks lying around from blown-up streets, do not use explosives to create materials for camouflage, cover, or concealment.

Use only the material needed; excess material can reveal the position. Get material from a wide area. For example, if defending the city park, use all of the park for resources—do not denude a small area near the position for camouflage material.

Buildings provide numerous concealed positions. Armored vehicles can often find isolated positions under archways or inside small industrial or commercial structures. Thick masonry, stone, or brick walls offer excellent protection from direct fire and provide concealed routes.

After camouflage is completed, inspect positions from the enemy's viewpoint. Conduct routine checks to see if the camouflage remains natural-looking and actually conceals the position. If it does not look natural, rearrange or replace it.

Positions must be progressively camouflaged as they are prepared. Work should not stop until all camouflage is complete. When the enemy has air superiority, work may be possible only at night. Shiny or light-colored objects which attract attention from the air must not be left lying about. Fires must not be lit where there is a chance that the flame could be seen by the enemy.

Shirts should not be removed, as exposed skin reflects light and attracts the enemy's attention. Even very dark skin will reflect light because of its natural oil.

Camouflage face paint is issued in three standard two-tone sticks. When issue-type face-paint sticks are not available, burnt

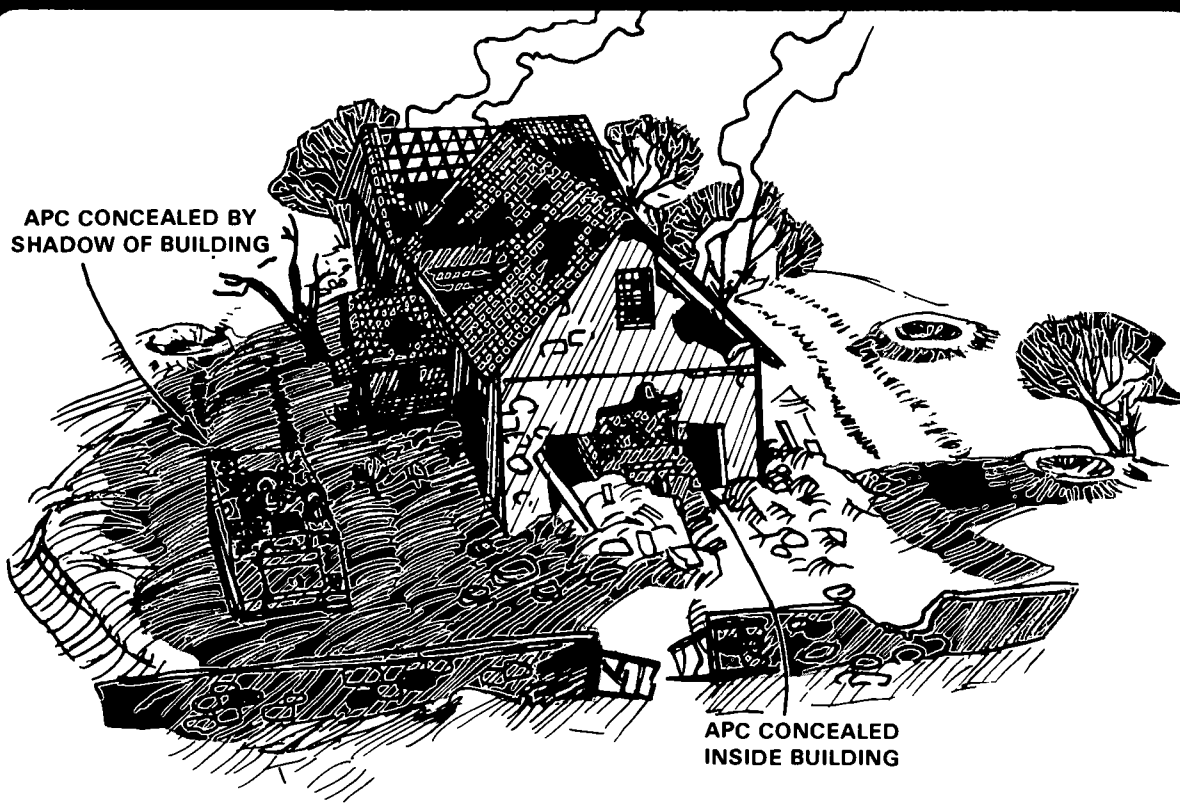
cork, charcoal, or lampblack can be used to tone down exposed skin. Mud may be used as a last resort, but mud dries and may peel off, leaving the skin exposed, and it may also contain harmful bacteria.

URBAN CAMOUFLAGE TECHNIQUES

USE OF SHADOWS

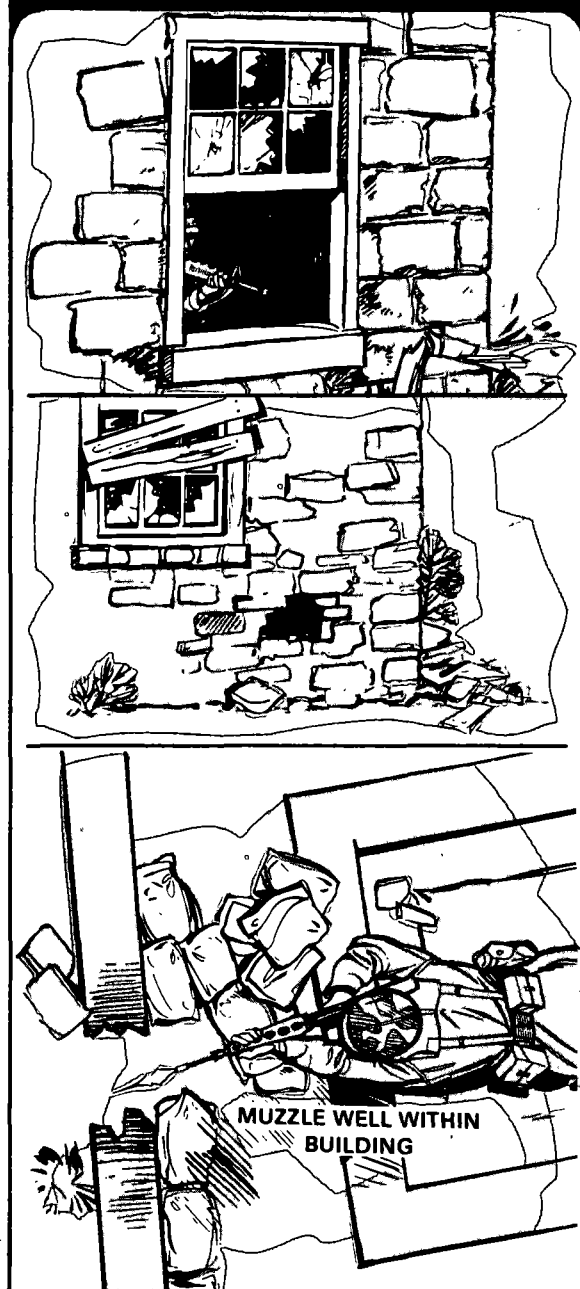
Buildings in urban areas throw sharp shadows. Use the shadows to help conceal vehicles and equipment. Avoid areas that are not in shadows. Vehicles may have to be moved periodically as shadows shift during the day. Of course, emplacements inside buildings provide even more concealment.

USE OF SHADOWS FOR CONCEALMENT



Soldiers should avoid the lighted areas around windows and loopholes. They will be more concealed if they shoot from the shadowed interior of a room.

CONCEALMENT INSIDE A BUILDING



A lace curtain or piece of cheesecloth will provide additional concealment to soldiers in interiors of rooms, if curtains are common to the area. Interior lights are, of course, prohibited.

COLOR AND TEXTURE

Standard camouflage pattern painting of equipment is not as effective in urban areas as a solid, dull, dark color hidden in shadows. Since repainting vehicles before entering an urban area is not always practical, the lighter sand-colored patterns should be subdued with mud or dirt.

The need to break up the silhouette of helmets and individual equipment exists in urban areas as elsewhere. In urban areas, however, burlap or canvas strips are a more effective camouflage garnish than foliage.

HELMET GARNISHED WITH BURLAP STRIPS



Predominant colors are normally browns, tans, and sometimes grays rather than greens, but each camouflage location should be evaluated separately.

DUST

Weapons emplacements should use a wet blanket, canvas, drape, or cloth to keep dust from rising when the weapon is fired.

WET BLANKET USED TO KEEP DUST DOWN



UNDERGROUND FACILITIES

CP and logistical emplacements will be easier to camouflage and better protected if located underground. Antennas can be remotod to upper stories or to higher buildings. Field telephone wire should be laid in conduits, in sewers, or through buildings.

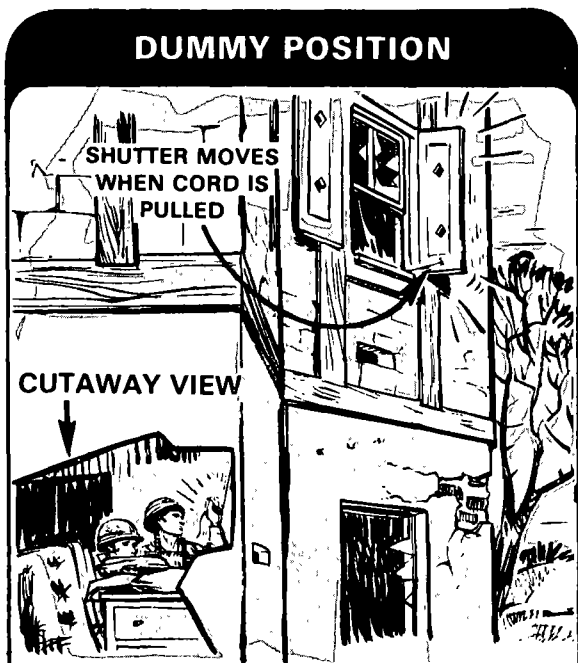
BACKGROUND

Pay attention to the background to insure that troops are not silhouetted or skylined, but rather blend into their surroundings.

To defeat enemy urban camouflage, soldiers should be alert for common camouflage errors:

- Tracks or other evidence of activity.
- Shine or shadows.
- An unnatural or peculiar color or texture.
- Muzzle flash, smoke, or dust.
- Unnatural sounds and smells.
- Movement.

Dummy positions can be used effectively to distract the enemy and make him reveal his position by firing.



BASIC RULES

Urban areas afford cover, resources for camouflage, and locations for concealment. Follow these basic rules of cover, camouflage, and concealment.

- Use the terrain and alter camouflage habits to suit your surroundings.
- Do not forget deceptive camouflage of buildings.
- Continue to improve positions. Reinforce fighting positions with sandbags or other shrapnel and blast-absorbent material.
- Do not upset the natural look of the area.
- Do not make your positions obvious by clearing away too much debris for fields of fire.
- Choose firing ports in inconspicuous spots when available.

Remember that a force that **COVERS** and **CONCEALS** itself will have a significant advantage over a force that does not.



APPENDIX C

Urban Building Analysis**GENERAL**

As in the case in other types of operations, success in urban combat depends largely on the ability to analyze the military aspects of soldier's terrain. This appendix outlines how to conduct an urban terrain analysis and properly use it to conduct defense or offense.

**MASS VERSUS FRAMED
CONSTRUCTION**

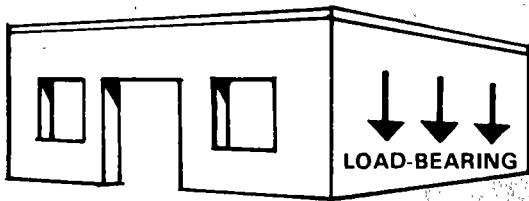
Soldiers must be able to recognize certain terrain features in evaluating urban terrain. Soldiers must also be able to recognize the difference between mass-construction and framed-construction buildings.

Mass-construction buildings are buildings in which the exterior walls bear the load of the building itself and the roof.

CONTENTS

GENERAL	C-1
MASS VERSUS FRAMED CONSTRUCTION	C-1
TYPES OF MASS-CONSTRUCTION BUILDINGS	C-3
TYPES OF FRAMED-CONSTRUCTION BUILDINGS	C-7
HOW TO DETERMINE FLOOR PLANS	C-13
TYPES OF HOUSING IN RESIDENTIAL AREAS	C-15

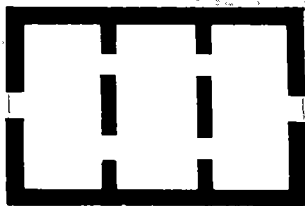
MASS-CONSTRUCTION BUILDING



Additional support, especially in wide buildings, comes from using load-bearing interior walls, strongpoints (*called pilasters*) on the exterior walls, cast-iron interior columns, and arches or braces over the windows and doors.

ADDITIONAL SUPPORT MEANS

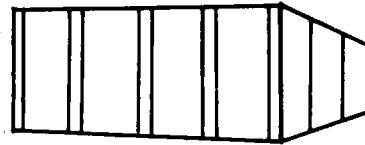
LOAD-BEARING INTERIOR WALLS



PLAN VIEW

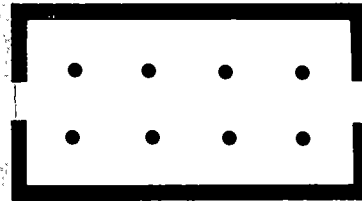
CONTINUED

STRONG POINTS ON EXTERIOR WALLS



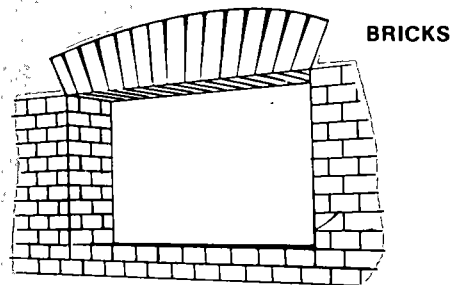
SIDE ELEVATION

INTERIOR COLUMNS (SMALL, IRON)



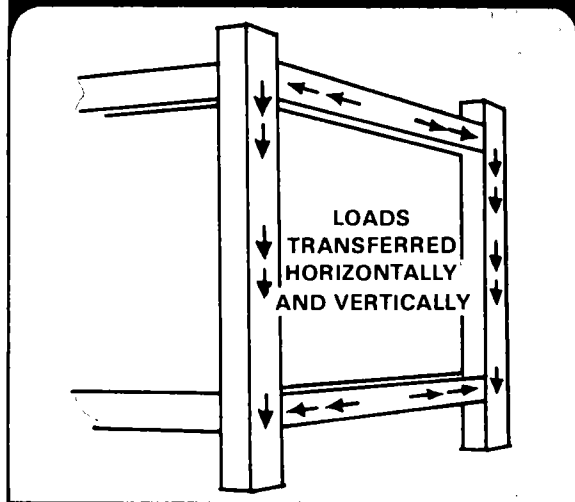
PLAN VIEW

ARCHES, BRACES OVER WINDOWS



Framed-construction buildings are buildings in which a steel or concrete frame supports the load. The walls serve only to keep out the weather. If the walls were removed, the frame of the building would still stand.

PRINCIPLE OF FRAMED CONSTRUCTION



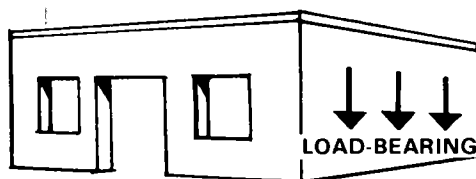
TYPES OF MASS-CONSTRUCTION BUILDINGS

Mass-construction buildings are built in a number of ways.

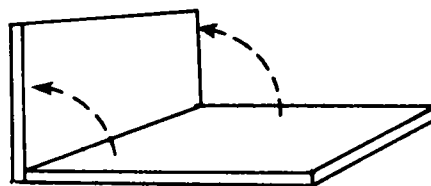
- The walls can be built in place, normally using brick, block, or poured-in-place concrete.
- The walls can be prefabricated and "tilt-up."
- The walls can be prefabricated and assembled like a number of boxes.

TYPES OF MASS-CONSTRUCTION BUILDINGS

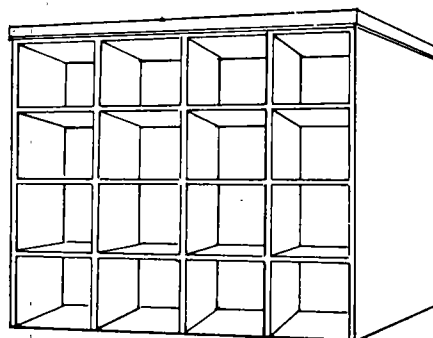
WALLS BUILT IN PLACE



PREFAB., AND "TILT-UP"



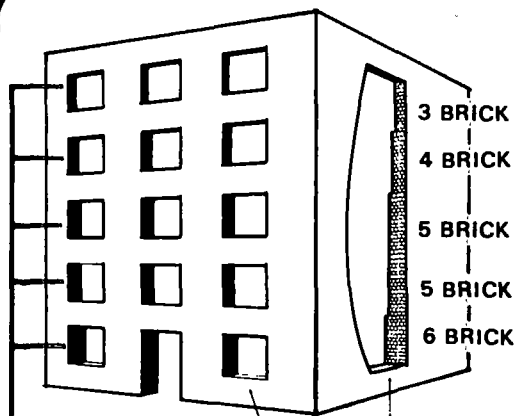
BOX-WALL PRINCIPLE



BRICK BUILDINGS

By far the most common and most important kind of mass-construction building is the brick building. *(In Europe, brick buildings are commonly covered with a stucco veneer so that the bricks do not show.)*

THE BRICK BUILDING

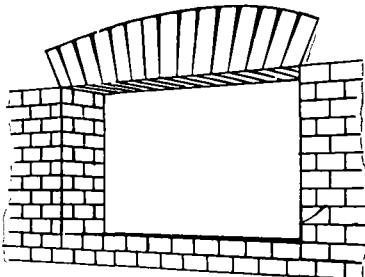


BUILDING TYPE ID KEYS

- ① WINDOW AREAS EXCEED $\frac{1}{3}$ WALL AREAS
- ② WINDOWS ALIGNED VERTICALLY
- ③ WINDOWS (OR DOORS) RECESSED
- ④ ARCHES OR OTHER SUPPORTS ABOVE WINDOWS
- ⑤ LOWER STORY WALLS THICKER THAN UPPER STORY WALLS
- ⑥ METAL PLATES AT FLOOR JOISTS

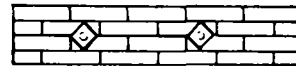
ARCHITECTURAL DETAILS OF BRICK BUILDINGS

ARCH OVER WINDOW (FOR STRENGTH)



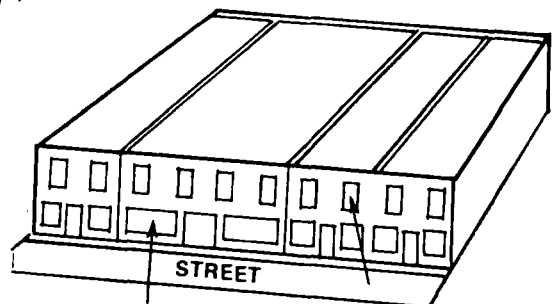
BRICK BUILDING (CONTINUED)

METAL PLATES ON OUTER WALL BETWEEN FLOORS



One of the most common uses of brick buildings is the small store along an urban street. Those buildings are found in all urban regions, but are most common in the core periphery areas.

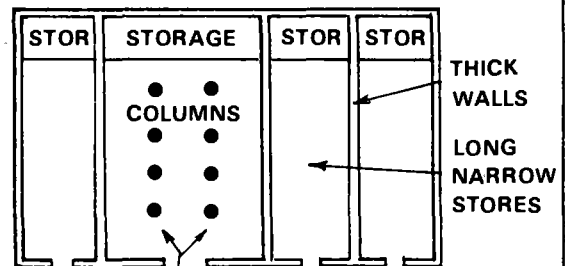
BRICK STORE



GROUND FLOOR
BUSINESSES

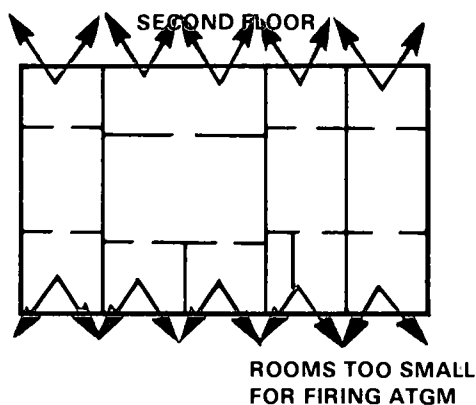
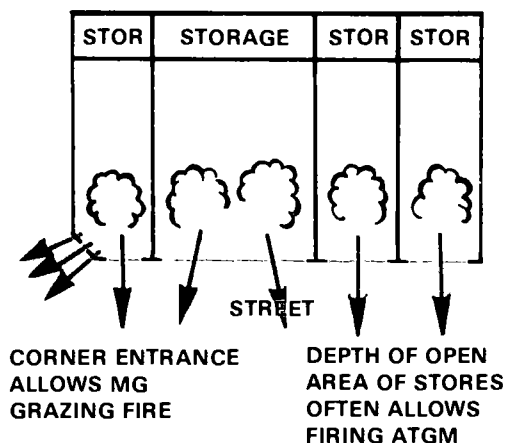
SECOND FLOOR
BUSINESSES

GROUND FLOOR PLANS

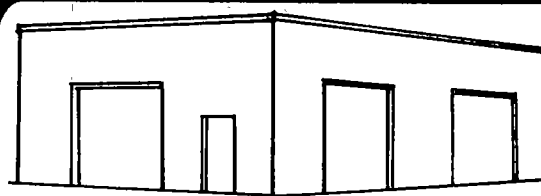


GREATER WIDTH
REQUIRES COLUMN
SUPPORT

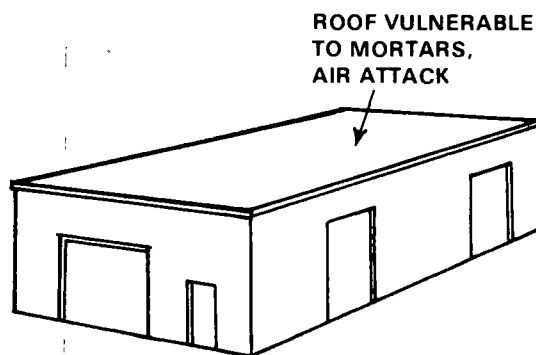
DEPTH 3 TIMES
WIDTH

BRICK STORE (CONTINUED)**MILITARY SIGNIFICANCE OF
BRICK STORES****GROUND FLOOR****CONCRETE BUILDINGS**

Another common mass-construction building in industrial areas and along commercial ribbons is the warehouse. It is built of poured-in-place concrete reinforced with steel bars, or of prefabricated walls which are "tilt-up."

WAREHOUSE**BUILDING TYPE ID KEYS**

- ① LARGE WALLS AND FEW WINDOWS.
- ② THICK WALLS (8" - 10")
- ③ ANGULAR SHAPE.
- ④ LOW ROOF PROFILE
- ⑤ USUALLY 1 STORY.

**MILITARY SIGNIFICANCE OF
WAREHOUSE-TYPE BUILDINGS****COVER, CONCEALMENT
FOR TANKS**

TOW—NO BACKBLAST
PROBLEM



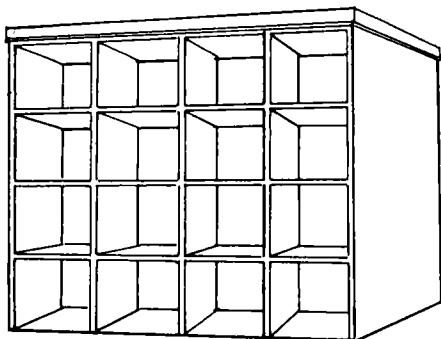
The walls of warehouses provide good cover, although the roof is vulnerable. The large open bays permit firing of ATGMs, and because these buildings are normally found in outlying areas, they often afford adequate fields of fire for ATGMs. These buildings are built on slabs and will therefore normally support the weight of vehicles.

BOX-WALL CONSTRUCTION

Another mass-construction building is the box-wall principle type. This building is made from prefabricated concrete panels, which are made of 6- to 8-inch-thick reinforced concrete. The outside wall is often glass. These buildings are commonly used as hotels or apartments. They are found in residential and in outlying areas.

Military aspects of the box-wall principle building include good cover, except at the one wall. The rooms are normally too small for ATGMs to be fired from them. There is a good circulation pattern from room to room and from floor to floor.

BOX-WALL PRINCIPLE BUILDING



BUILDING TYPE I.D. KEYS

- ① UNIFORM SIZE CELLS (OFTEN FULLY VENTED)

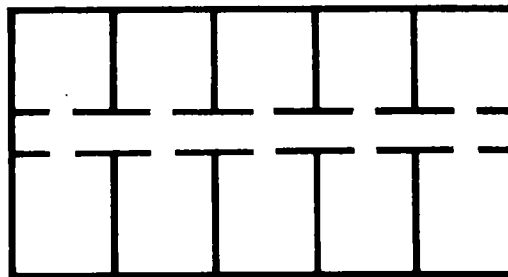
BOX-WALL (CONTINUED)

- ② THICK (6"-8") FLOORS, WALLS, CEILINGS
(NOT ALWAYS VISIBLE)
- ③ WINDOWLESS END WALLS

MILITARY SIGNIFICANCE OF BOX- WALL PRINCIPLE BUILDINGS

FULL WINDOWS TO
OUTSIDE

NO PROTECTION BUT USUALLY
GOOD FIELDS OF FIRE



PROTECTED
MOVEMENT
ROOM TO
ROOM

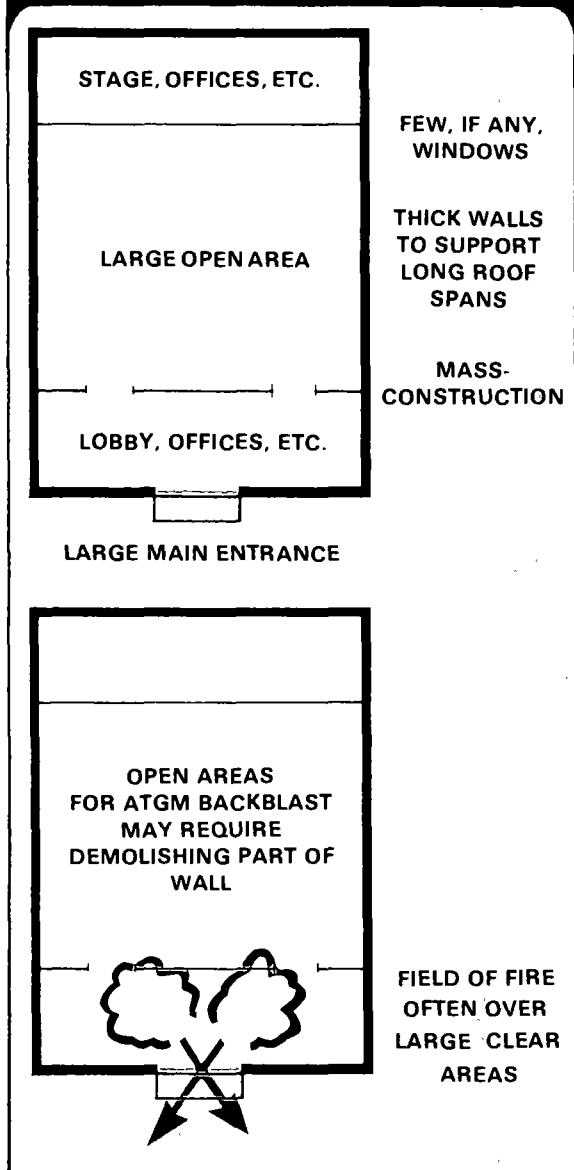
EACH ROOM HAS
THICK (6" - 8") WALLS,
FLOORS, CEILINGS

LARGE, OPEN INTERIORS

Public gathering places (*such as churches and theaters*) are mass-construction buildings with large, open interiors. The walls provide good cover, but the roof does not. The interior walls are not load bearing, and are normally easy to breach or remove. Public gathering places are most common in core, core periphery, residential, and outlying highrise areas.

These buildings have adequate interior space for firing ATGMs. They are often located next to parks or other open areas, and therefore have fields of fire long enough for ATGMs.

PUBLIC GATHERING PLACES



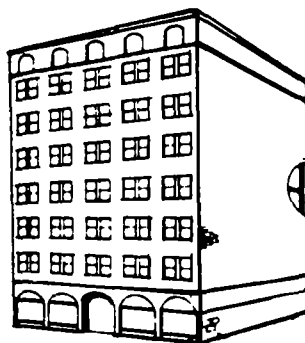
TYPES OF FRAMED-CONSTRUCTION BUILDINGS

There are two basic types of framed-construction buildings—heavy clad and light clad. Older framed-construction

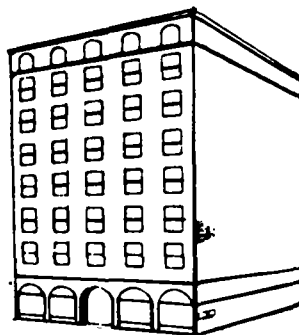
buildings are normally heavy clad. Newer “highrise” framed buildings are normally light clad. Both types are common to city core regions and in outlying highrise areas.

FRAMED-CONSTRUCTION BUILDINGS

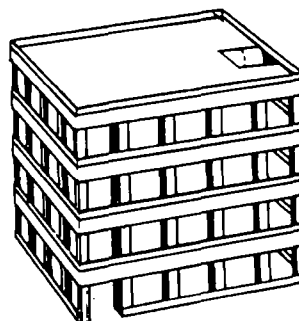
OFFICE



HOTEL



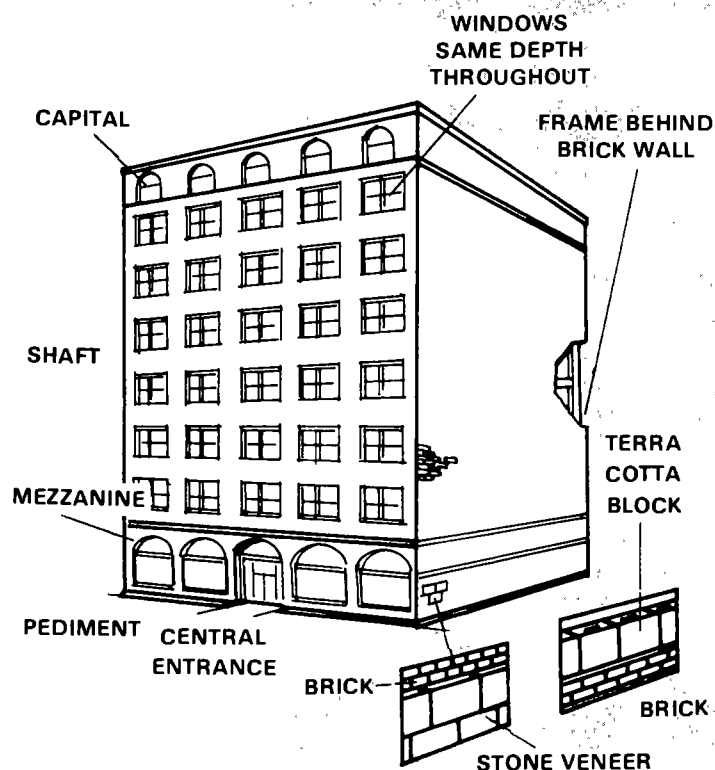
MODERN
PARKING GARAGE



HEAVY-CLAD FRAMED BUILDINGS

Heavy-clad framed buildings are found in core and core periphery areas. They can be recognized by a "classic" style or architecture in which each building is designed with three sections—the pediment, shaft, and capital. Unlike the brick building, the walls are the same thickness on all floors, and the windows are set at the same depth throughout. Often the frame members (*the columns*) can be seen, especially at the ground floor. The cladding, consisting of layers of terra cotta blocks, brick, and stone veneer, does not provide good cover as does the wall of brick buildings. It will protect against small arms and light shrapnel, but does not provide much cover against heavy weapons.

HEAVY-CLAD FRAMED BUILDING



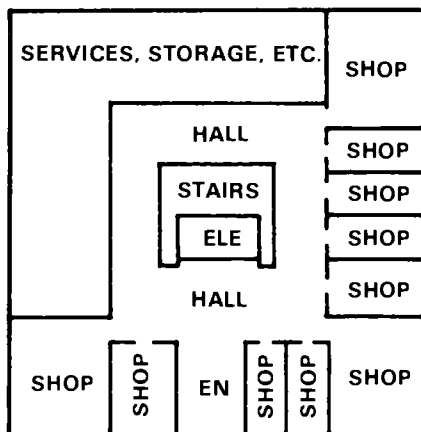
BUILDING TYPE ID KEYS

- ① BUILDING EXCEEDS 6 STORIES
- ② LARGE WINDOW AREA (IF OFFICE OR STORE)
- ③ WINDOWS NOT RECESSED
- ④ OUTER WALL THICKNESS SAME THROUGHOUT BUILDING
- ⑤ FRAME MEMBERS SHOWING
- ⑥ CLASSIC STYLING (PEDIMENT, SHAFT, CAPITAL)

The floor plans of these buildings depend upon their functions. Office buildings normally have small offices surrounding an interior hall.

FLOOR PLAN OF HEAVY-CLAD FRAMED OFFICE BUILDING

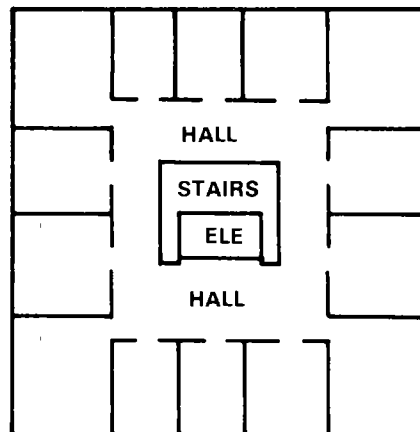
GROUND FLOOR



BUILDING INTERIOR ID KEYS

- ① SHAPE: SQUARE OR RECTANGULAR
- ② SIZE: LARGE ENOUGH TO NEED LIGHTWELL
- ③ ENTRANCE LOCATION: CENTER OR SIDE
- ④ ELEVATOR HOUSING LOCATION: CENTER OR SIDE
- ⑤ SHOPS: NUMBER, SIZE, SHAPE

UPPER FLOOR



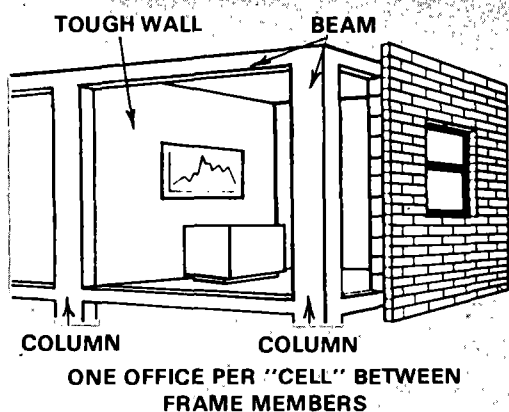
BUILDING INTERIOR ID KEYS

- ① SHAPE: SQUARE OR RECTANGULAR
- ② SIZE: LARGE ENOUGH TO NEED LIGHTWELL
- ③ ENTRANCE LOCATION: CENTER OR SIDE
- ④ ELEVATOR HOUSING LOCATION: CENTER OR SIDE

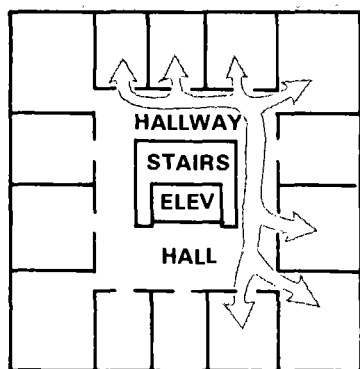
These offices normally have the same dimensions as the distance between columns (*some large offices are as large as two times the distance between columns*). These rooms are too small to permit firing of ATGMs, but do provide a moderate degree of cover for snipers or machinegunners.

Department stores normally have large, open interiors. Those areas permit firing ATGMs (*if there are adequate fields of fire*). Often there is a mezzanine level with a large backblast area which would permit firing down onto tanks. Between sections of the store there are often steel fire doors.

HEAVY-CLAD FRAMED OFFICE



MILITARY SIGNIFICANCE OF HEAVY-CLAD FRAMED OFFICE BUILDINGS



OFFENSE
ROOM-TO-ROOM
CLEARING
REQUIRED

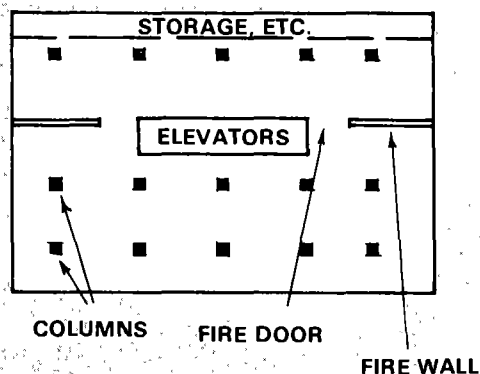
TOUGH WALL
PARTITIONS

DEFENSE
SHALLOW, NARROW
ROOMS MEAN POSSIBLE
BACKBLAST PROBLEMS

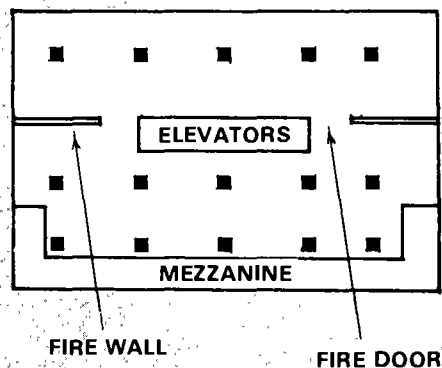
GOOD COVER
FOR SNIPERS
EASY ROOM-TO-ROOM
CIRCULATION
(ARROWS)

HEAVY-CLAD FRAMED DEPARTMENT STORE

UPPER RETAIL FLOOR

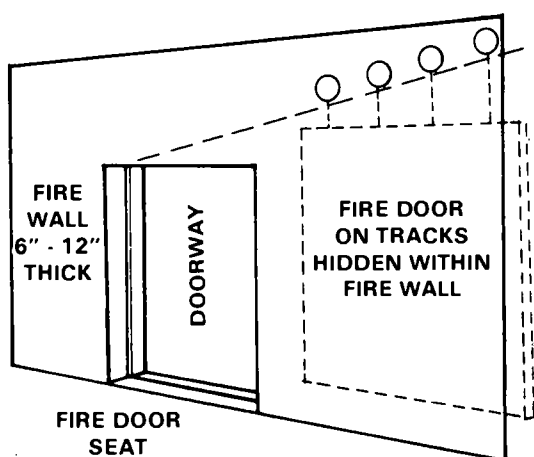


GROUND RETAIL FLOOR



The steel fire doors are activated by heat. Once they are closed, they are very difficult to breach or force open, and effectively divide the store into sections.

FIRE WALL AND FIRE DOOR



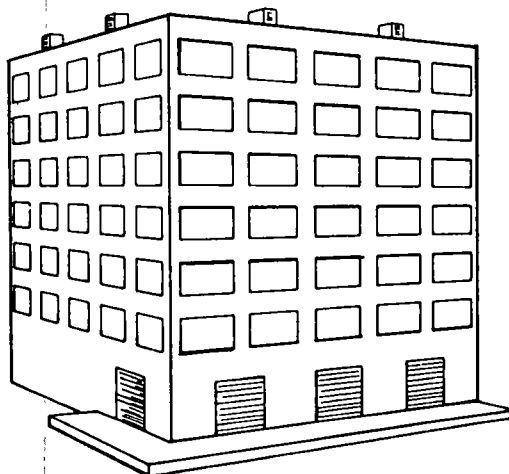
FIRE DOOR HELD OPEN
BY FUSIBLE LINK

FIRE DOOR SPECS

- ① 2"-4" THICK
- ② STEEL CLAD
- ③ TO JAM OPEN: USE WEDGE
- ④ TO OPEN: USE EXPLOSIVES OR A PRY

Another type of heavy-clad framed building is used as a highrise factory. Such buildings can normally be easily recognized because the concrete beams and columns are visible from the outside. They are normally located in older industrial areas. The large windows and open interior normally favor the use of ATGMs. Because the floors are often made to support heavy machinery, this building provides good overhead cover.

HIGHRISE FACTORY



BUILDING TYPE ID KEYS

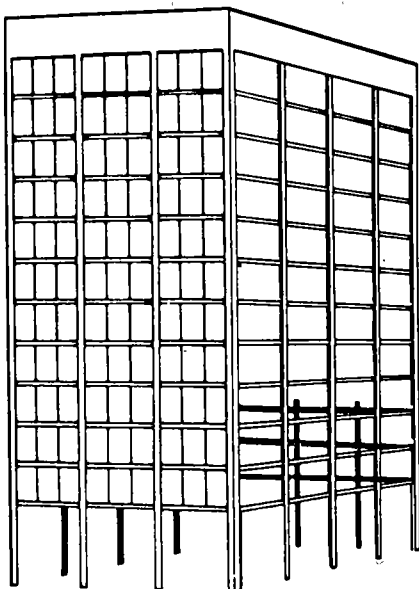
- ① WINDOWS AS FULL AS POSSIBLE (FOR LIGHT)
- ② COLUMNS VISIBLE THROUGH WINDOWS
- ③ OPEN BAY INTERIORS
- ④ LOADING DOCKS, LARGE DOORS ON GROUND FLOOR
- ⑤ VENTILATION DEVICES ON ROOF

LIGHT-CLAD BUILDINGS

Most framed buildings built since World War II are light-clad buildings. They are found in both core and outlying highrise regions. Their walls consist of a thin layer of brick, lightweight concrete, or glass. Those materials provide very little protection against any weapon. The floors of the buildings, however, are much heavier, and do provide moderate overhead cover.

LIGHT-CLAD FRAMED BUILDING

IN-FILL
VENTING

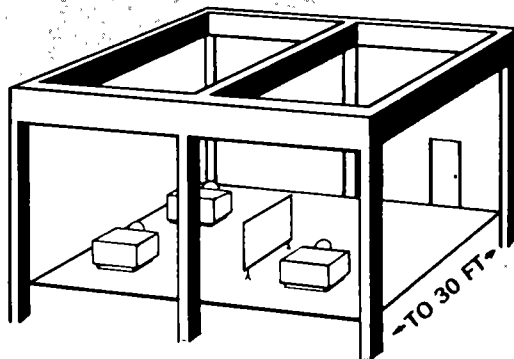


BUILDING TYPE ID KEYS

- ① OUTER "SKIN" APPEARS THIN
- ② FRAME VISIBLE, ON GROUND FLOOR THROUGH WINDOWS, AT SIDES, REAR
- ③ HIGH PROPORTION OF WINDOWS
- ④ BUILDING SEPARATED FROM OTHERS
- ⑤ BUILDING EXCEEDS 4 STORIES

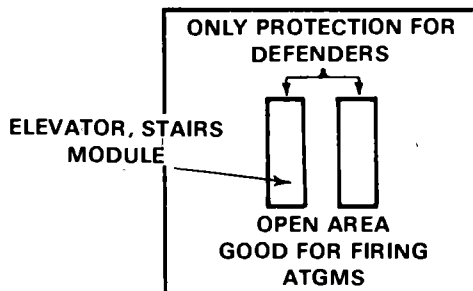
The rooms in light-clad buildings are much bigger than those in heavy-clad buildings. This fact, together with the fact that the buildings usually stand detached from other buildings, favors the employment of ATGMs. The interior partitions are very thin and light, and are very easy to breach.

LIGHT-CLAD FRAMED ROOM



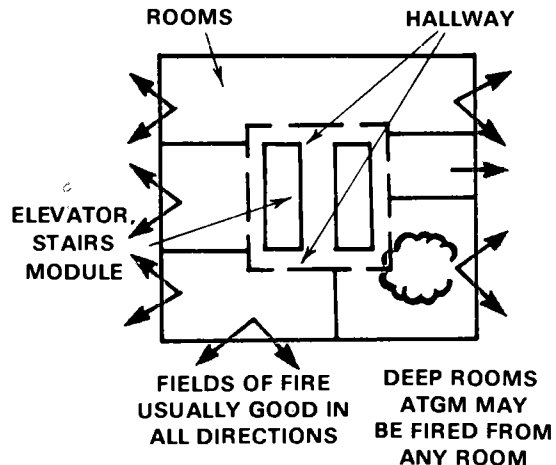
MILITARY SIGNIFICANCE OF LIGHT-CLAD FRAMED BUILDINGS

GROUND FLOOR



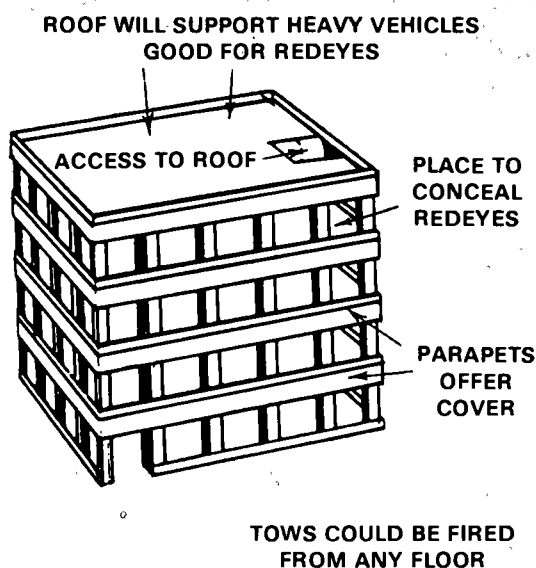
UPPER FLOOR

LIGHTWEIGHT PARTITIONS
EASY CIRCULATION BETWEEN
ROOMS



A final type of framed building, found in all urban regions, is the parking garage. This building has no cladding. It is one of the few buildings in an urban area in which all floors will support vehicles, and it provides a means to elevate truck-mounted TOWs. The open interiors permit firing of ATGMs. Parking garages are normally high enough to provide a 360-degree field of fire for antiaircraft weapons. A Redeye, for example, could hide under the top floor of the garage, come out to engage an aircraft, and duck back under cover.

PARKING GARAGE

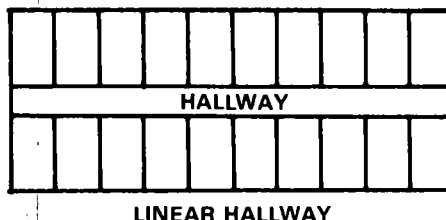


HOW TO DETERMINE FLOOR PLANS

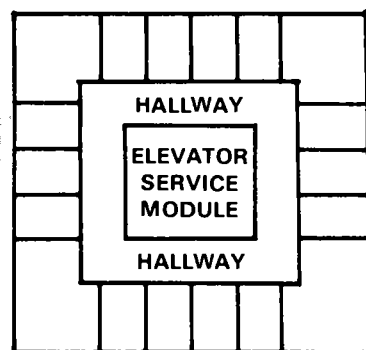
Floor plans in buildings follow predictable patterns. One of the factors that determine floor plans is building shape. The basic principle governing building shape is that rooms normally have access to outside light.

BUILDING SHAPES

NARROW



WIDE



That principle will help determine floor plans in very large buildings.

BUILDING SIZES

① SMALL, NARROW 20' WIDE

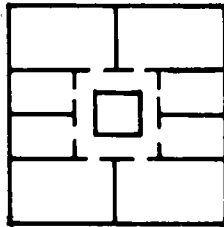
1 ROOM WIDE
NO HALLWAY



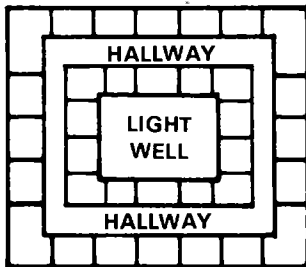
BUILDING SIZES (CONTINUED)

**② MEDIUM
1 BLOCK**

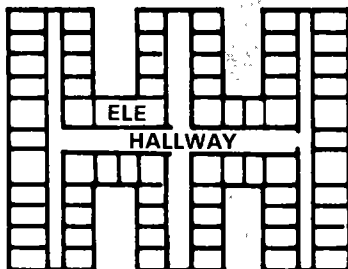
ROOMS OFF
HALLWAY
ALL ROOMS
HAVE OUTSIDE
WINDOWS



**③ LARGE FULL CITY BLOCK
CENTRAL LIGHT WELL**



OR
"WINGS"



ALL ROOMS HAVE OUTSIDE WINDOWS

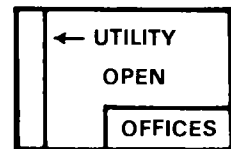
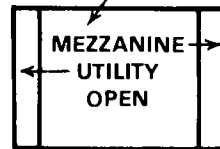
Building function is also a clue to floor plans.

BUILDING FUNCTIONS

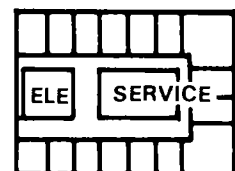
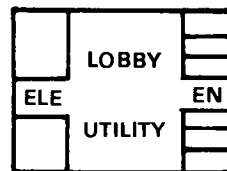
RETAIL

UPPER FLOOR

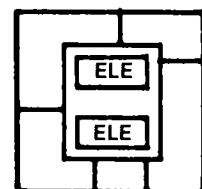
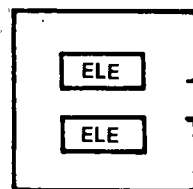
GROUND FLOOR



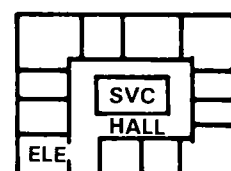
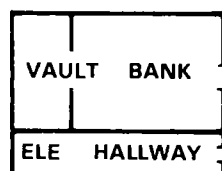
HOTEL



**OFFICE:
FRAMED, LIGHT-CLAD**



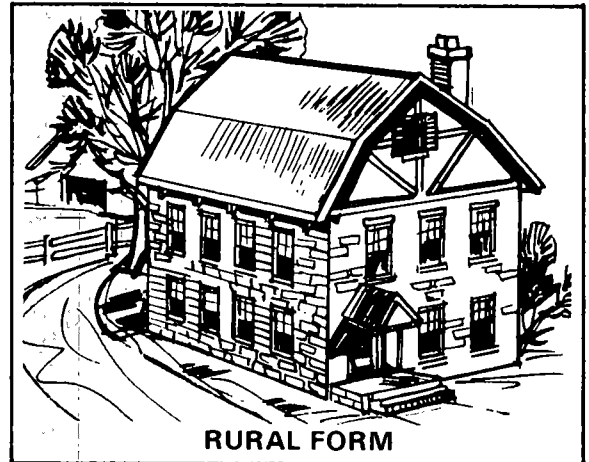
**OFFICE:
BRICK/FRAMED
HEAVY-CLAD**



TYPES OF HOUSING IN RESIDENTIAL AREAS

Basically, there are two types of houses in the western world, urban and rural. Urban houses are normally mass-construction brick buildings.

Rural houses in the continental US are commonly made of wood. In Germany, however, wood is very scarce, and rural buildings are normally constructed of concrete blocks.



RURAL FORM

Another common type of urban housing in Europe is called the "Hof-style" apartment building.

TYPES OF HOUSING



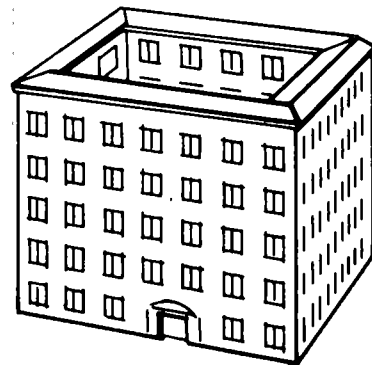
URBAN FORM

CHARACTERISTICS

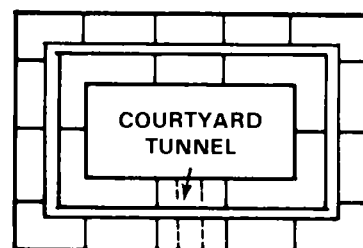
- ① NARROW, SET END-WISE TO STREET
- ② ADJOINING WALK (OFTEN "PARTY" WALLS)
- ③ LITTLE, OR NO, SETBACK FROM SIDEWALK
- ④ TWO OR MORE STORIES TALL
- ⑤ ANGULAR FORM
- ⑥ FLOORPLANS: OFTEN ONLY ONE ROOM WIDE WITH NO HALLWAYS
- ⑦ AREA FOUND: NW EUROPE, NORTH AMERICA — ESPECIALLY IN LARGE CITIES OR IN CORE AREAS OF SMALL CITIES

HOF-STYLE

PERSPECTIVE VIEW



FLOOR PLAN



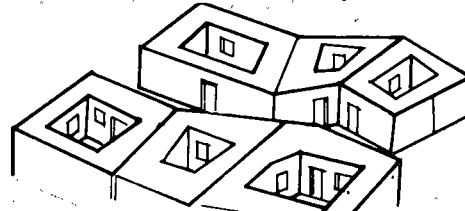
HOF-STYLE (CONTINUED)

CHARACTERISTICS

- ① NO SETBACK, OCCUPIES FULL BLOCK
- ② HAS INNER COURTYARD (HOF): PROVIDES CONCEALMENT OPPORTUNITIES
- ③ APARTMENT UNITS FACE BOTH COURTYARD AND STREET: HALLWAY IS IN MIDDLE
- ④ CONSTRUCTION: USUALLY BRICK
- ⑤ AREA FOUND: CENTRAL AND NORTHERN EUROPE

In the Mideast, and in some other tropical regions, the most common urban housing type is the enclosed courtyard style. These houses are added one to another with little regard to the street pattern. The result is a crooked, narrow maze, harder to move through or shoot in than even some dense European areas.

ENCLOSED COURTYARD STYLE



CHARACTERISTICS

- ① WINDOWLESS OUTER WALLS, INNER COURTYARDS
- ② VARYING SIZE, DIMENSIONS
- ③ NO SETBACKS
- ④ ONE TO TWO STORIES TALL
- ⑤ FLAT ROOFS
- ⑥ FLOOR PLAN: ALL ROOMS OPEN ONTO COURTYARD
- ⑦ LOCATION: ON NARROW, CURVING STREETS WITH SHORT HORIZONTAL LINES OF SIGHT
- ⑧ AREA FOUND: MIDDLE EAST, NORTH AFRICA, AND MEDITERRANEAN

APPENDIX D

Nuclear, Biological, and Chemical Defense in Urban Terrain

GENERAL

Current US policy regarding lethal or incapacitating agents is that their use against an armed enemy requires approval at the National Command Authority level. Potential enemies may not operate under the same restrictions. Field commanders must be prepared to assume an adequate NBC defensive posture when engaged in urban fighting.

To plan the NBC defense of his unit, the commander must be familiar with how the urban environment affects the protection, detection, and decontamination processes.

flying glass. Tunnels, storm drains, subway tubes, and sewers provide better protection than buildings. Flammable buildings should be avoided. Tanks, armored personnel carriers (APC), and fighting vehicles also provide some protection.

PROTECTION

NUCLEAR

Buildings usually are not strong enough to provide effective shelter from a nuclear explosion. However, the lowest floor or basement of a reinforced concrete or steel-framed building will offer excellent protection from all effects except overpressure, if personnel are not in front of windows facing ground zero. Personnel who are in front of a window facing ground zero will receive severe burns and wounds from

CONTENTS

GENERAL	D-1
PROTECTION	D-1
MISSION ORIENTED PROTECTION POSTURE	D-2
DETECTION	D-2
DECONTAMINATION	D-2
OTHER CHEMICAL OPERATIONS	D-3

Buildings provide some protection against fallout, and troops who must move in or through a contaminated urban area should move through buildings or sewers whenever possible.

BIOLOGICAL

Personal hygiene is a critical defensive measure against infection and disease. Unfortunately, urban areas are characterized by sophisticated sanitation systems, and when those systems are destroyed the resulting sanitary conditions become far worse than those in areas where sanitary facilities have never existed. Commanders must enforce constant discipline to insure that all possible sanitation measures are employed and that immunizations are kept up to date.

Biological attacks are difficult to detect or recognize. Since certain biological agents are sprayed or dropped in bomblets, the observation of either of those indicators should be promptly reported. Prompt reporting and treatment of sick individuals will also speed the employment of medical countermeasures. Although buildings and shelters provide some protection against spray, they do not provide any appreciable amount of protection against biological agents themselves.

CHEMICAL

Chemical agents cause casualties either by inhalation or contact with the skin. Buildings do provide some protection against sprays—they may afford the individual an extra few seconds to mask. Buildings also have a channelizing effect, tending to contain the effects of an agent, causing great variations in chemical density from room to room or from building to building. Chemical agents tend to settle in low places—thus

making sewers and subways dangerous hiding places.

MISSION ORIENTED PROTECTION POSTURE

Commanders should plan their mission oriented protection posture (MOPP) keeping in mind that general urban logistical considerations apply to NBC equipment as well. Protective clothing, detection and decontamination equipment, and sealed containers of food and water must be stockpiled like other supplies. When operating in protective clothing, commanders must make allowances for the strenuous activities normally associated with urban combat.

DETECTION

As soon as practicable after an NBC attack, battalions should dispatch their detection teams. Detection in urban terrain is complicated by the attenuating and containing nature of the buildings. Detection teams should conduct a rapid search of the major streets, intersections, and buildings in their area in support of the initial NBC reports. They then should systematically search each building, room, and underground facility to detect the seepage of chemical agents or the spread of fallout into the area and provide the data to subordinate units and in subsequent NBC reports.

DECONTAMINATION

RADIOLOGICAL

For certain decontaminating operations, such as hosing down buildings, foul weather gear should be worn to prevent radioactive material from touching the skin.

BIOLOGICAL

Sunlight will kill most microorganisms, and exposure of contaminated equipment to

a hot, bright sun is a decontamination technique. DS2, the standard biological decontaminant, can be used on the inside of rooms.

WARNING

DS2 IS TOXIC—ALL PERSONNEL SHOULD BE EVACUATED FROM ROOMS TO BE DECONTAMINATED.

CHEMICAL

Roads, sidewalks, or other hard surfaces are best decontaminated by weathering, if time permits. Covering agents with several inches of dirt or sand will also provide protection. Fragment testing should be conducted periodically to insure that the agent has not seeped through the covering. For critical sections of road, a truck-mounted M12A1 (*power-driven decontaminating apparatus* [PDDA]) can be used to spray STB slurry for rapid decontamination. Using the PDDA is the most practical means of decontamination if time is not available to wait for weathering, and use of the decontaminated facility is critical.

Buildings, particularly wooden ones, are difficult to decontaminate. **Some techniques that will work are—**

- scrubbing with STB slurry;
- washing with hot, soapy water;
- washing or spraying with washing soda solution; and
- airing.

FACILITIES

Decontamination stations should be in secure areas, near aid stations. Some method

of disposing of contaminated water, such as a marked sump or drain, must also be present.

OTHER CHEMICAL OPERATIONS

SMOKE

Chemical support may be required from smoke generator units for both offensive and defensive operations in urban areas. In the offense, smoke can support the maneuver of combat elements and deception operations. Smoke employed in the defense obscures enemy air and ground observation, thereby limiting the accuracy of enemy fires and target intelligence.

Smoke should not be used when it degrades the effectiveness of aimed fires from friendly forces. Likewise, an extremely dense concentration of smoke in a closed room will displace the oxygen in the room, thus tending to smother troops even when they are wearing protective masks.

Smoke pots, generators, or artillery smoke munitions should be used to cover the withdrawal of defending forces or the movement of attacking forces. Artillery-delivered white phosphorus may also be effective on enemy forces by causing casualties and fires.

Smoke grenades can be massed to provide a hasty screen to conceal movement across streets and alleys. Smoke grenades can also be used for signalling. M203-launched smoke grenades can be used to mark targets for attack helicopters or tactical air.

The use of smoke in urban areas is affected by complex wind patterns caused by the buildings. When covering an urban area

RIOT CONTROL AGENTS

with a smoke haze or blanket, it is essential that all buildings be covered. Failure to obscure tall buildings, towers, and steeples will provide enemy observers with reference points for placement of fires within the urban area.

The incendiary effects of both white phosphorus and the base ejection munitions in the litter and debris of the urban area must be considered.

When authorized, riot control agents such as CS and CN can be used to drive enemy troops from prepared positions or, in the persistent form, to deny areas to enemy occupation. Riot control agents are incapacitating, with no lasting casualty effects. They are therefore effective when the avoidance of civilian casualties is a planning consideration. Against an enemy well trained in chemical defense, however, riot control agents will not be very effective.

APPENDIX E

Fighting Positions for Urban Terrain**GENERAL**

A critical platoon- and squad-level defensive task in urban combat is the preparation of fighting positions. Fighting positions in urban areas are usually constructed inside buildings and are selected based on an analysis of the area in which the building is located and the individual characteristics of the building.

CONSIDERATIONS

As a minimum, leaders should consider the following factors:

- Protection.
- Dispersion.
- Concealment.
- Fields of fire.
- Covered routes.
- Observation.
- Fire hazard.
- Time.

protection, while buildings constructed of wood, panelling, or other light material must be reinforced to gain sufficient protection. One- to two-story buildings without a strongly constructed cellar are vulnerable to indirect fires and will require construction of overhead protection for each firing position.

PROTECTION

Leaders should select buildings that provide protection from direct and indirect fires. Reinforced concrete buildings with three or more floors provide suitable

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ANTITANK GUIDED MISSILE POSITIONS	E-19
LIGHT ANTITANK WEAPON	E-20
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DISPERSION

A position should not be established in a single building when it is possible to occupy two or more buildings that will permit mutually supporting fires. A position in one building, without mutual support, is vulnerable to bypass, isolation, and subsequent destruction from any direction.

CONCEALMENT

Buildings that are obvious defensive positions (*easily targeted by the enemy*) should not be selected. In certain situations, requirements for security and fields of fire will require the occupation of exposed buildings. In such cases, additional reinforcement is necessary to provide suitable protection within the building.

FIELDS OF FIRE

To prevent isolation, positions should be mutually supporting and have fields of fire in all directions. Clearing fields of fire may require the destruction of adjacent buildings using explosives, engineer equipment, and field expedients.

COVERED ROUTES

Defensive positions should have at least one covered route that permits resupply, medical evacuation, reinforcement, or withdrawal from the building. The route may be established:

- **Through walls to adjacent buildings.**
- **Through underground systems.**
- **Through communications trenches.**
- **Behind protective buildings.**

OBSERVATION

The building should permit observation of adjacent defensive sectors.

FIRE HAZARD

Leaders should avoid selecting positions in buildings that are a fire hazard. If flammable structures must be occupied, the danger of fire can be reduced by wetting down the immediate environment, laying an inch of sand on the floors, and providing fire extinguishers and firefighting equipment. Also, routes of escape must be prepared in case of fire.

TIME

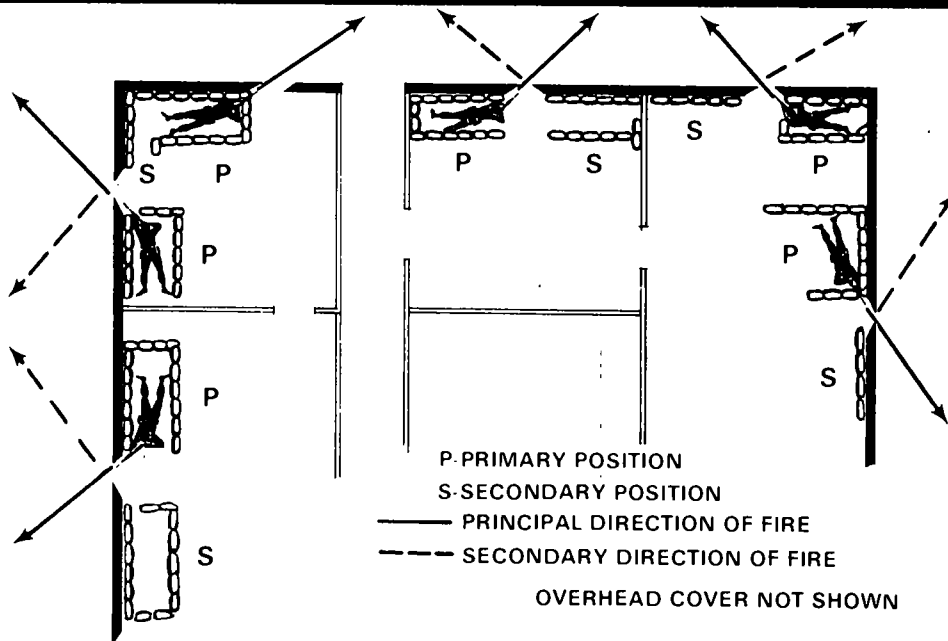
Time available to prepare the defense may be the most critical factor. If sufficient time is not available, buildings that require extensive preparation may not be used. Conversely, buildings located in less desirable areas that require little improvement will probably become the centers of defense.

PREPARATION OF BUILDINGS

SELECTION OF WEAPONS POSITIONS

Each weapon should be assigned a primary sector of fire to cover enemy approaches. Alternate positions that overwatch the primary sector should also be selected, normally located in an adjacent room on the same floor. Each weapon must be assigned a supplementary position, to engage attacks from another direction, and an FPL.

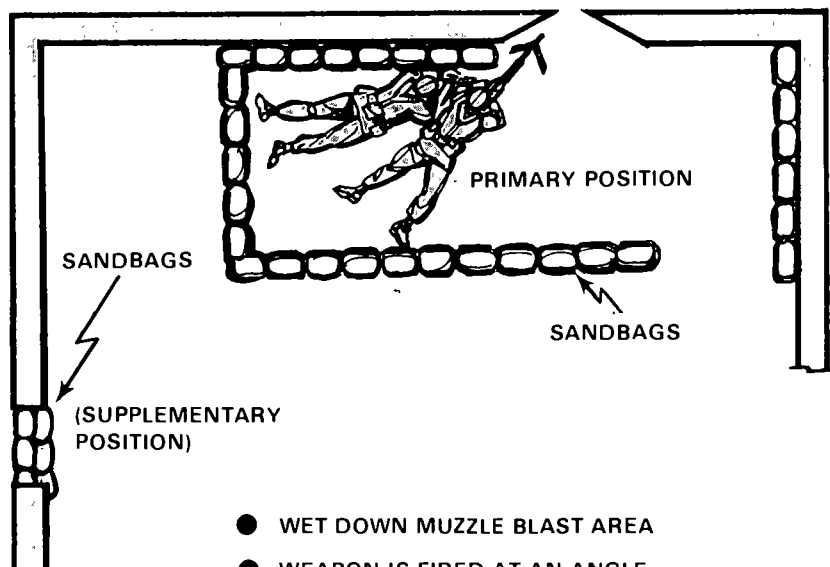
WEAPON POSITIONS



RIFLEMAN POSITION ON LOWER FLOORS

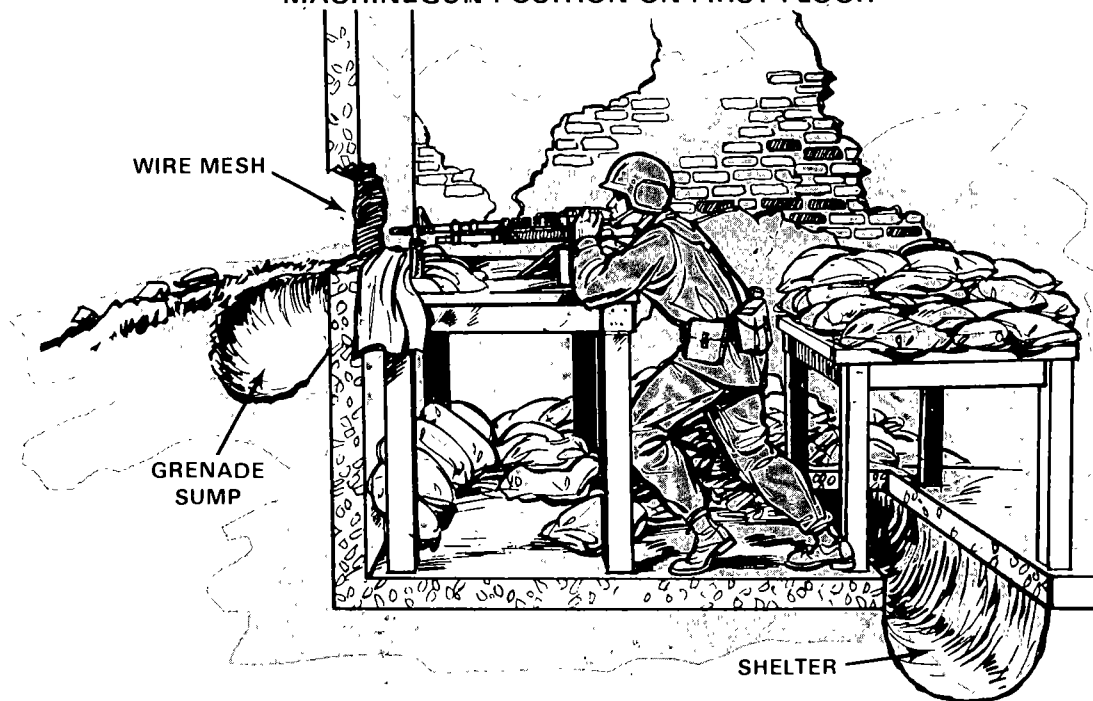


WEAPON POSITIONS (CONT.)



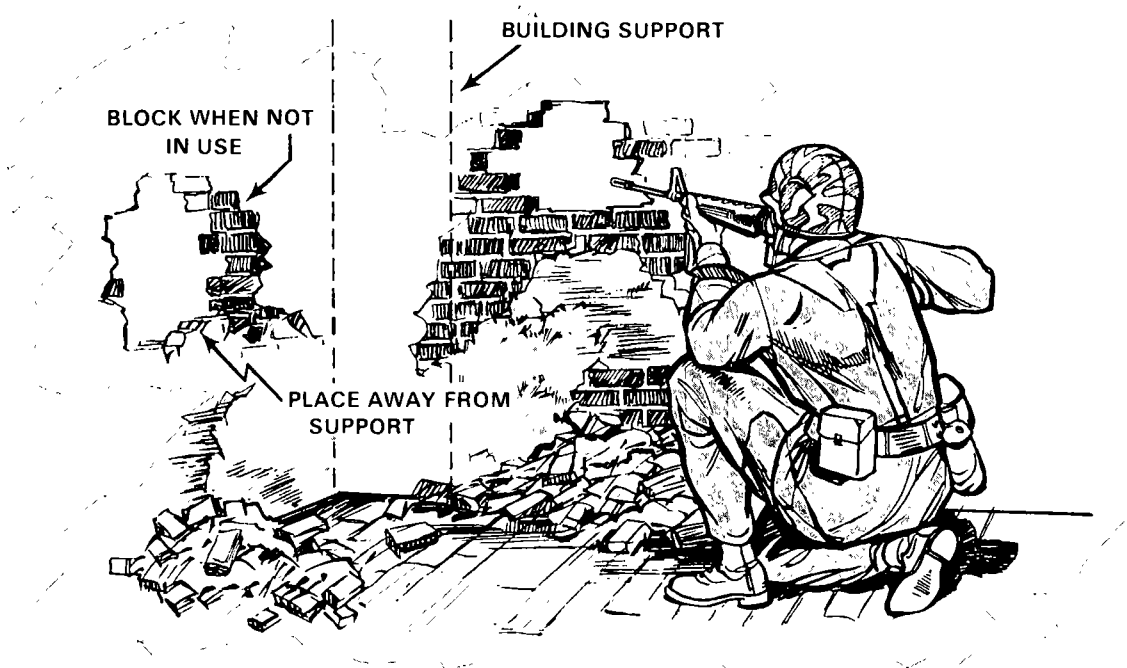
- WET DOWN MUZZLE BLAST AREA
- WEAPON IS FIRED AT AN ANGLE THROUGH FIRING PORT
- MUZZLE/BLAST SHOULD NOT PROTRUDE BEYOND THE WALL

MACHINEGUN POSITION ON FIRST FLOOR

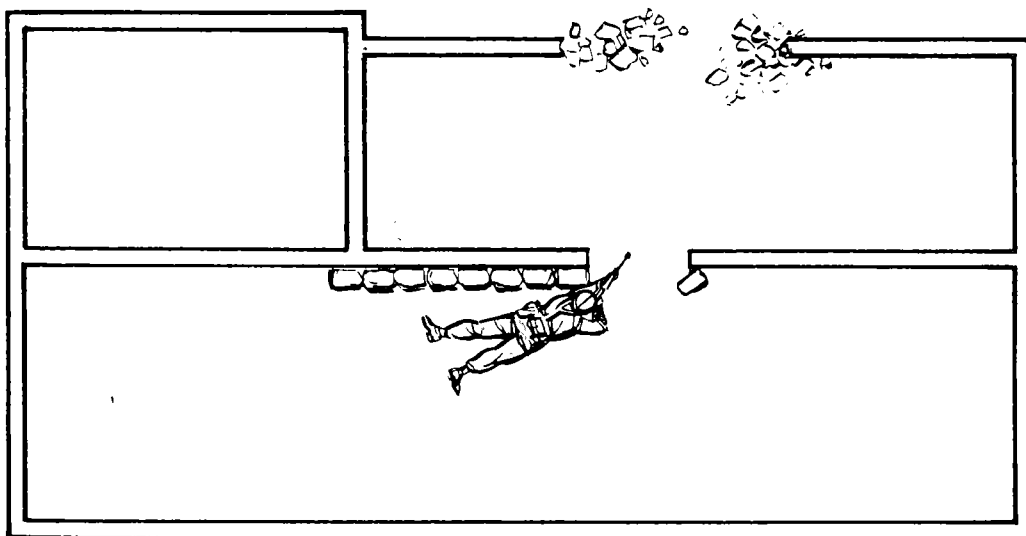


CELLAR FIRING POSITION

WEAPON POSITIONS (CONT.)



CORNER FIRING POSITION



INTERIOR WALL POSITION

PREPARATION OF WEAPONS POSITIONS

Window position. Soldiers should kneel or stand on either side of a window. In order to fire downward from upper floors, tables or similar objects can be placed against the wall to provide additional elevation, but they must be positioned to prevent the weapon from protruding through the window. Leaders should inspect positions to determine the width of sector that each position can engage.

WINDOW POSITION



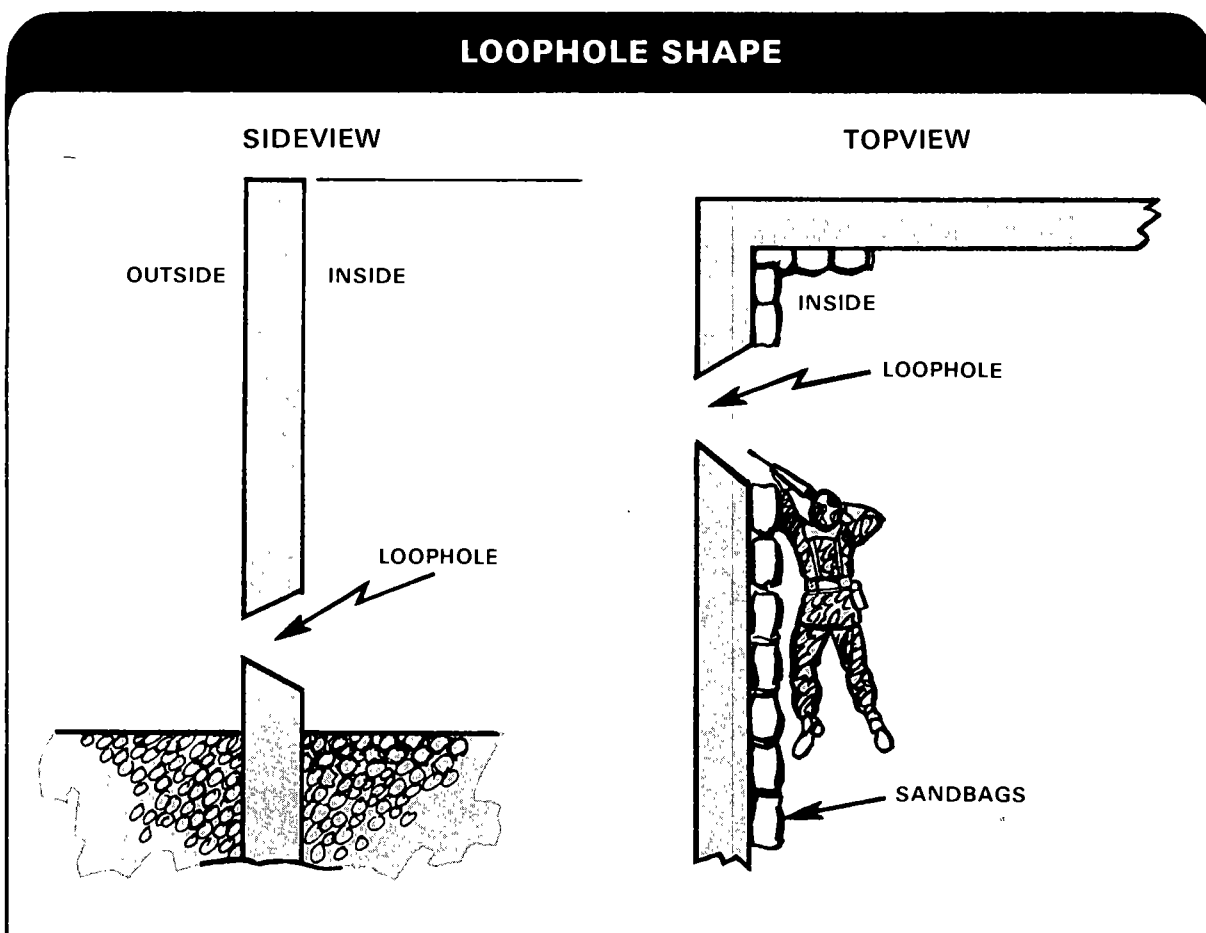
Loopholes. To avoid establishing a pattern of always firing from windows, loopholes should be prepared in walls.

Several loopholes are generally required for each weapon (*primary, alternate, and supplementary position*), but the number of loopholes should be carefully considered because they may weaken walls and reduce protection. Engineers should be consulted for advice and assistance before an excessive number of loopholes are made. Loopholes should be made by punching or drilling holes in walls. Blasting loopholes, unless done by experts, can result in a large hole, easily seen

by the enemy. Loopholes should be placed where they are concealed.

To obtain a wide arc of fire and to facilitate engagement of high and low targets, loopholes should be cone-shaped to reduce the size of the exterior aperture. The edges of a loophole, especially in brick walls, splinter when hit by bullets. Protective linings, such as an empty sandbag held in place by wire mesh, will reduce spalling effects. When not in use, loopholes should be covered with sandbags to prevent the enemy from firing into or observing through them.

LOOPHOLE SHAPE



Loopholes should also be prepared in interior walls and ceilings of buildings to permit fighting within the position when necessary. Interior loopholes should overwatch stairs, halls, and unoccupied rooms, and be concealed by pictures, drapes, or furniture. Those in floors permit the defender to engage enemy personnel on lower floors with small arms and grenades. Such holes should also be covered when not in use.

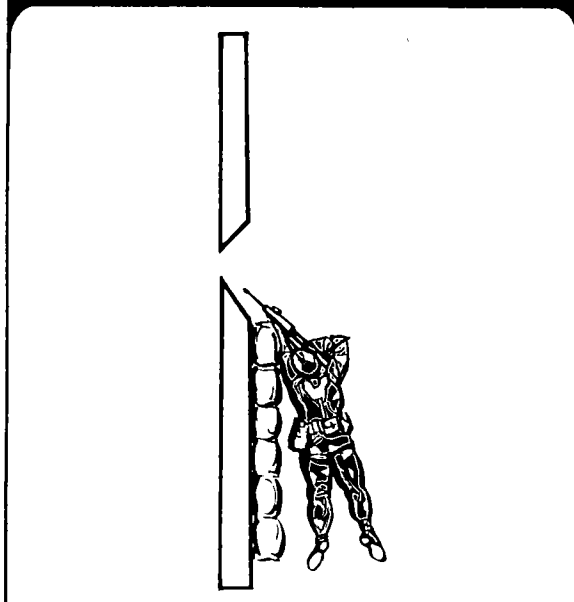
Although walls provide some frontal protection, they should be reinforced with sandbags, furniture filled with dirt, or other expedients. Each position should have overhead and all-round protection.

POSITION WITH OVERHEAD AND ALL-ROUND PROTECTION



To enhance individual protection, soldiers should avoid firing directly through the loophole. They should fire at an angle, using the wall as protection.

FIRING THROUGH LOOPHOLES



OTHER CONSTRUCTION TASKS

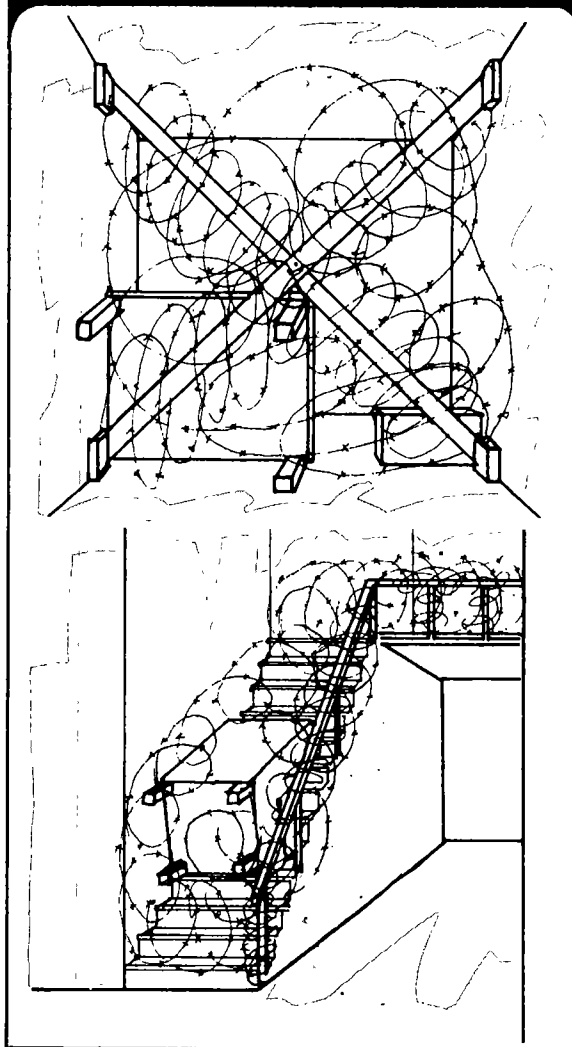
GROUND FLOORS

Doors. Unused doors should be locked, nailed shut, and blocked and reinforced with furniture, sandbags, or other field expedients. Outside doors can be boobytrapped, when authorized, by engineers or other trained personnel. Boobytraps should be recorded.

Hallways. If not required for the defender's movement, hallways should be blocked with furniture and tactical wire. Boobytraps, if authorized, should be employed.

Stairs. Defenders should block stairs used by the defense with furniture and tactical wire, or remove them. Boobytraps should also be employed on stairs.

BLOCKING HALLWAYS AND STAIRS

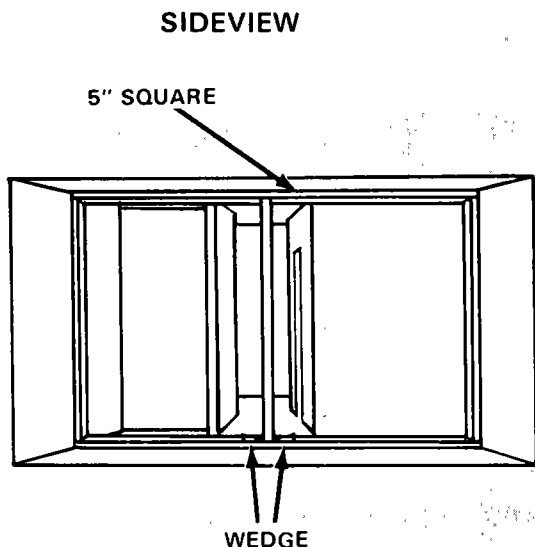


Windows. All glass should be removed, and windows not used should be blocked with boards or sandbags.

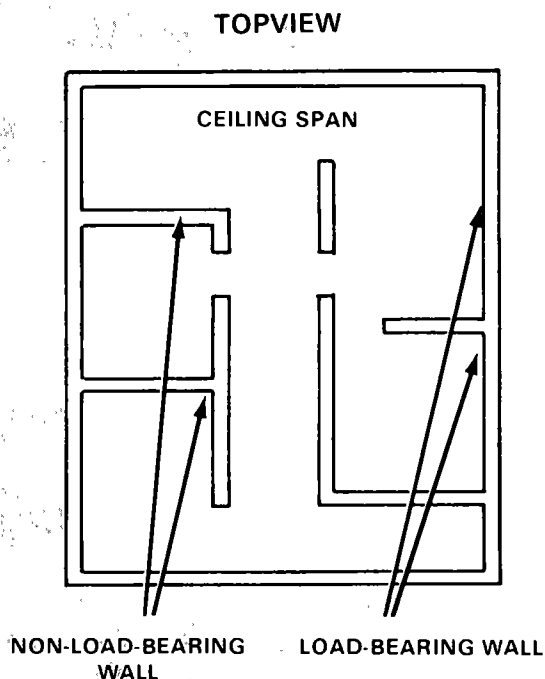
Floors. Foxholes should be made in floors. If there is no basement, foxholes can give additional protection from heavy direct fire weapons.

Ceilings. Supports that can withstand the weight of rubble from upper floors should be placed under ceilings.

CEILING REINFORCEMENT



CEILING BRACES SHOULD BE ESTABLISHED PARALLEL TO THE CEILING SPAN.



Unoccupied rooms. Rooms not required for defense should be blocked with tactical wire or boobytrapped.

BASEMENTS

Basements require preparation similar to that of the ground floor. Any underground system not used by the defender that may provide enemy access to the position must be blocked.

UPPER FLOORS

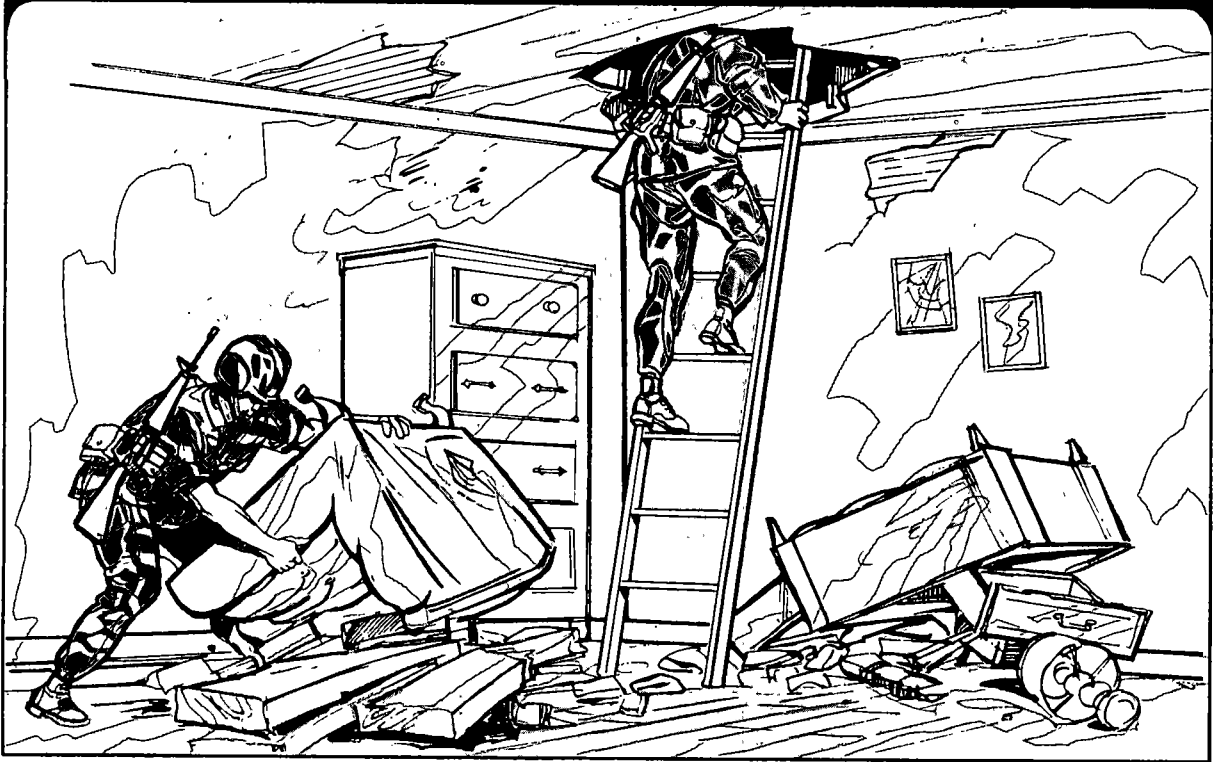
Upper floors require essentially the same preparation as ground floors. Windows need not be blocked, but they should be covered with wire mesh. The wire should be loose at the bottom to permit the defender to drop grenades, while blocking grenades thrown from the outside.

INTERIOR ROUTES

Routes are required that will permit defending forces to move within the building

to engage enemy forces in any direction. Escape routes should also be planned and constructed to permit rapid evacuation of a room or the building. Small holes (*called mouseholes*) should be made through interior walls to permit movement between rooms. Such holes should be concealed behind furniture and blocked with sandbags when not in use. Movement between floors can be achieved by knocking holes in ceilings or floors and using ropes or ladders that can be quickly installed or removed. Once the defender has withdrawn to upper floors, such holes should be blocked with timbers, furniture, or other expedients. Building evacuation routes should be clearly marked for both day and night identification. All personnel need to be briefed as to where the various routes are located. Rehearsals should be conducted so that everyone becomes familiar with the routes.

MOVEMENT BETWEEN FLOORS



FIRE PREVENTION

Buildings that have wooden floors and raftered ceilings will require extensive fire prevention measures. The attic and other wooden floors should be covered with approximately 1 inch of sand or dirt, and buckets of water should be positioned for immediate use. Water basins and bathtubs should be filled as a reserve for firefighting. All electricity and gas should be turned off. Fire breaks can be created by destroying buildings adjacent to the defensive position. Firefighting materials (*dirt, sand, fire extinguishers, and blankets*) should be placed on each floor for immediate use.

WARNING
GAS AND ELECTRICITY ARE
DANGEROUS TURN THEM OFF.

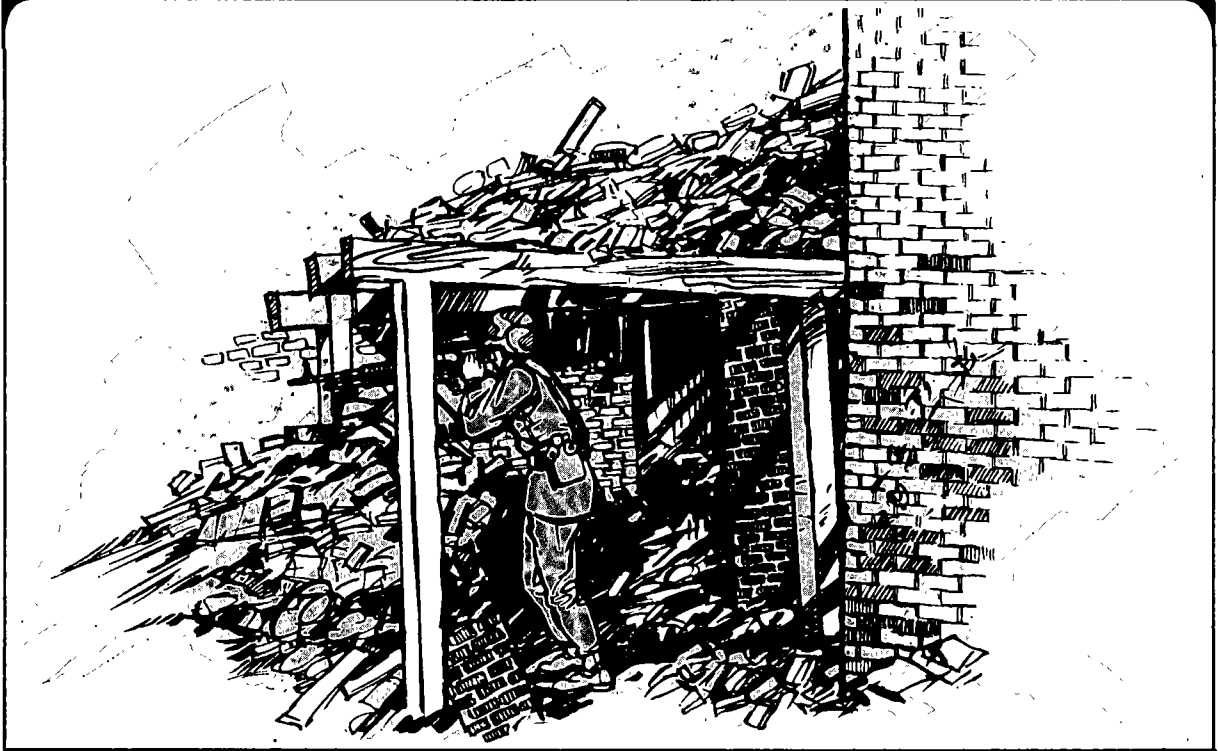
COMMUNICATIONS

Telephone lines should be laid through adjacent buildings or underground systems, or buried in shallow trenches. Radio antennas can be concealed by placing them among civilian TV antennas, on the sides of chimneys and steeples, or out windows that direct FM communications away from enemy early warning sources and ground observation. Telephone lines within the building should be laid through walls and floors.

RUBBLING

Rubbling parts of the building provides additional cover and concealment for weapons emplacements. Rubbling should be done only by trained engineers and must fit into the defensive scheme.

RUBBLING PARTS OF BUILDINGS FOR COVER AND CONCEALMENT



ROOFS

Positions in flat-roofed buildings require obstacles that restrict helicopters from landing. Roofs that are accessible from adjacent structures should be covered with tactical wire or other expedients, and need to be guarded. Entrances to buildings from roofs can be blocked if doing so is compatible with the defense of those buildings and with the overall defensive plan.

EXTERIOR STRUCTURE

Any structure on the outside of a building that could assist scaling the building to gain access to upper floors, or to the roof, should be removed or blocked.

OBSTACLES

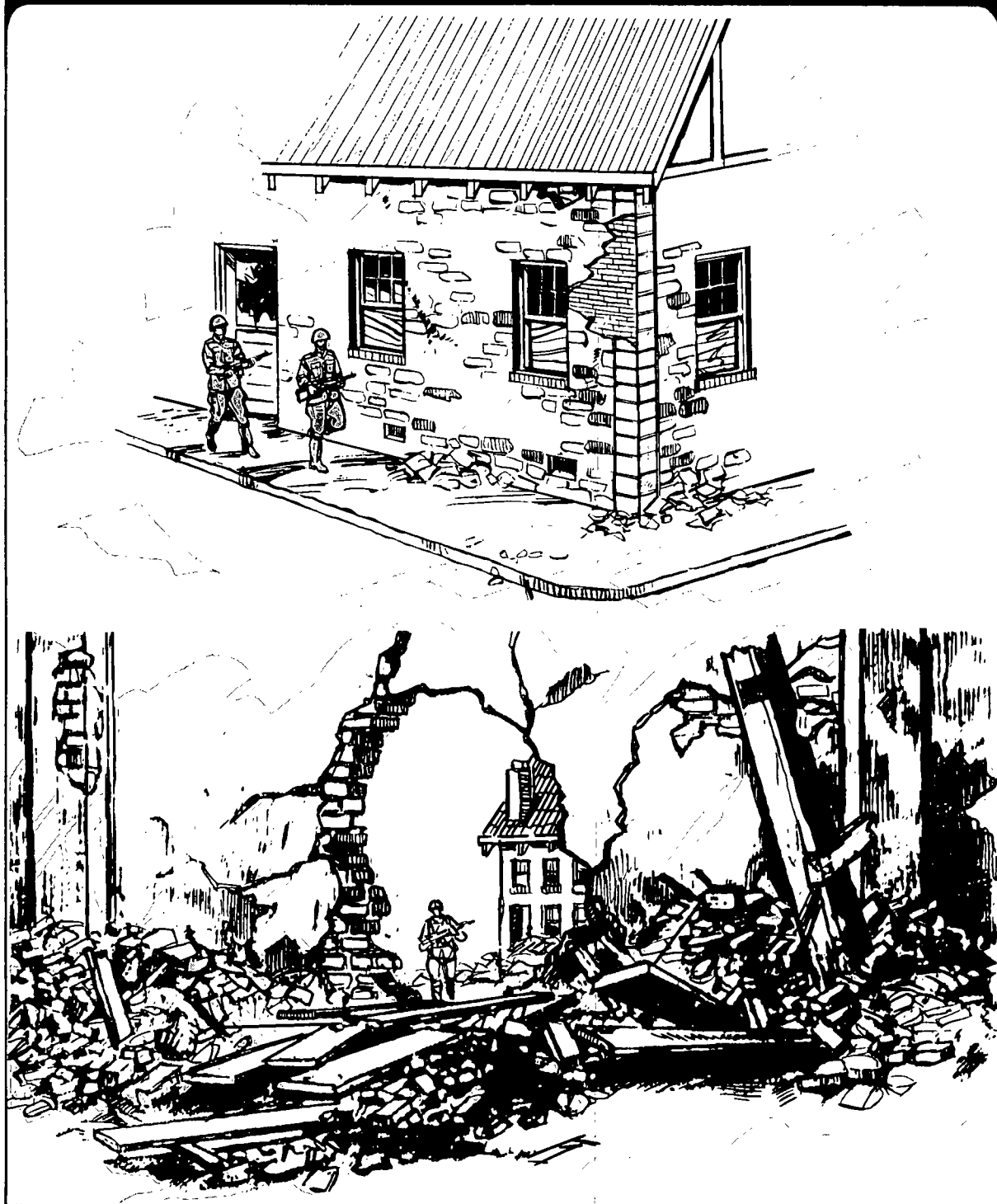
Obstacles should be positioned adjacent to buildings in order to stop tanks and to delay infantry.

Near defensive positions, buildings that provide cover for enemy infantry or that could be suitable enemy weapons positions should be:

- Destroyed.
- Mined or boobytrapped.
- Barricaded with barbed wire.
- Prepared for demolition.

M18 Claymore mines can be used effectively either inside or outside of buildings to cover the withdrawal of friendly troops or to supplement final protective fires.

EFFECTIVE USE OF CLAYMORE MINES



FIELD OF FIRE

Fields of fire should be improved around the defensive position as time permits. Selected buildings may be destroyed to enlarge fields of fire. Obstacles to antitank guided missiles, such as telephone wires, should be cleared. Deadspace should be covered with mines and obstacles.

MINES AND OBSTACLES TO COVER DEADSPACE



TANK AND APC POSITIONS

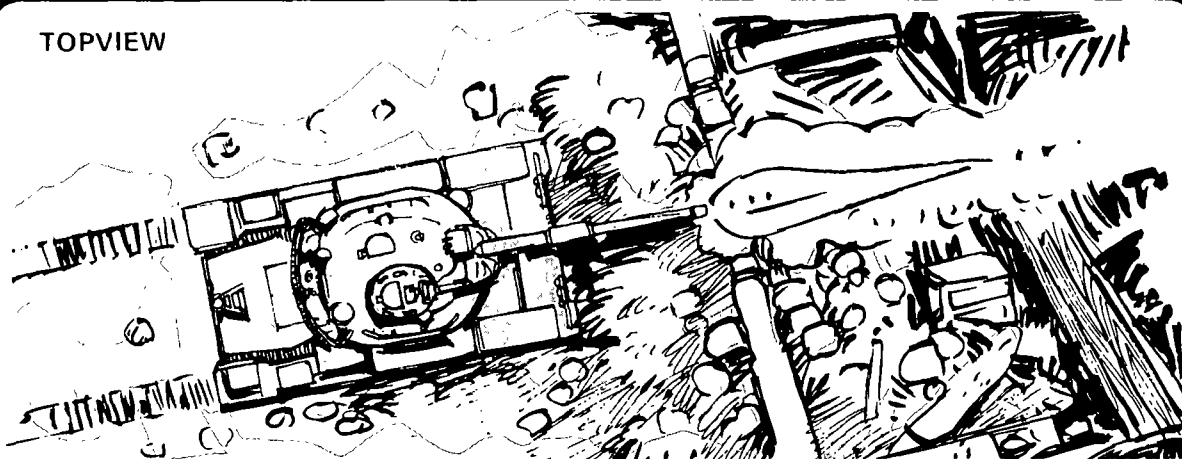
TANK POSITIONS

Tank positions are selected and developed to obtain the best cover, concealment, observation, and field of fire, while retaining the tank's ability to move.

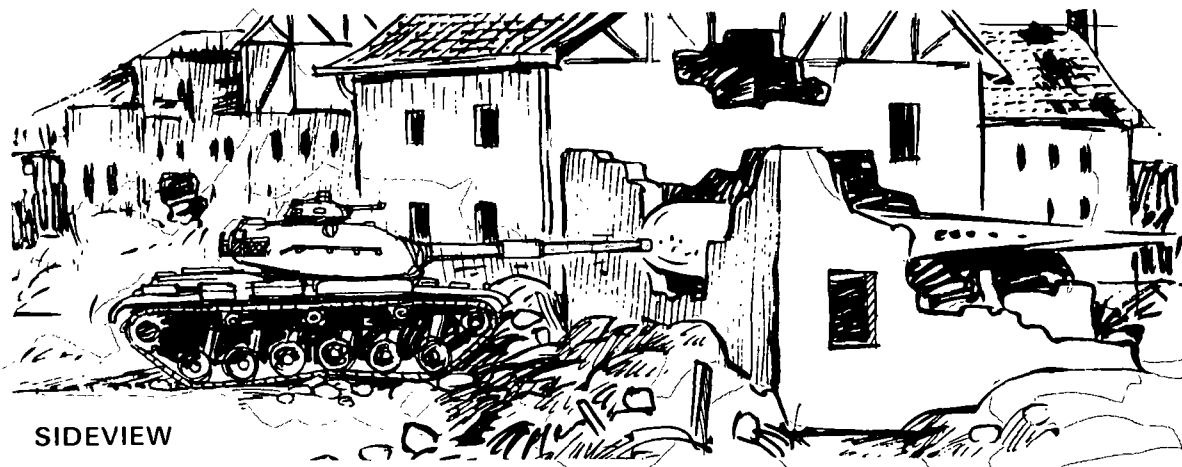
If fields of fire are restricted to streets, HULL-DOWN positions should be used to gain cover and to fire directly down streets. From those positions, tanks are protected and can rapidly move to alternate positions. Buildings collapsing from enemy fires are a minimal hazard to tank and crew.

HULL-DOWN POSITION

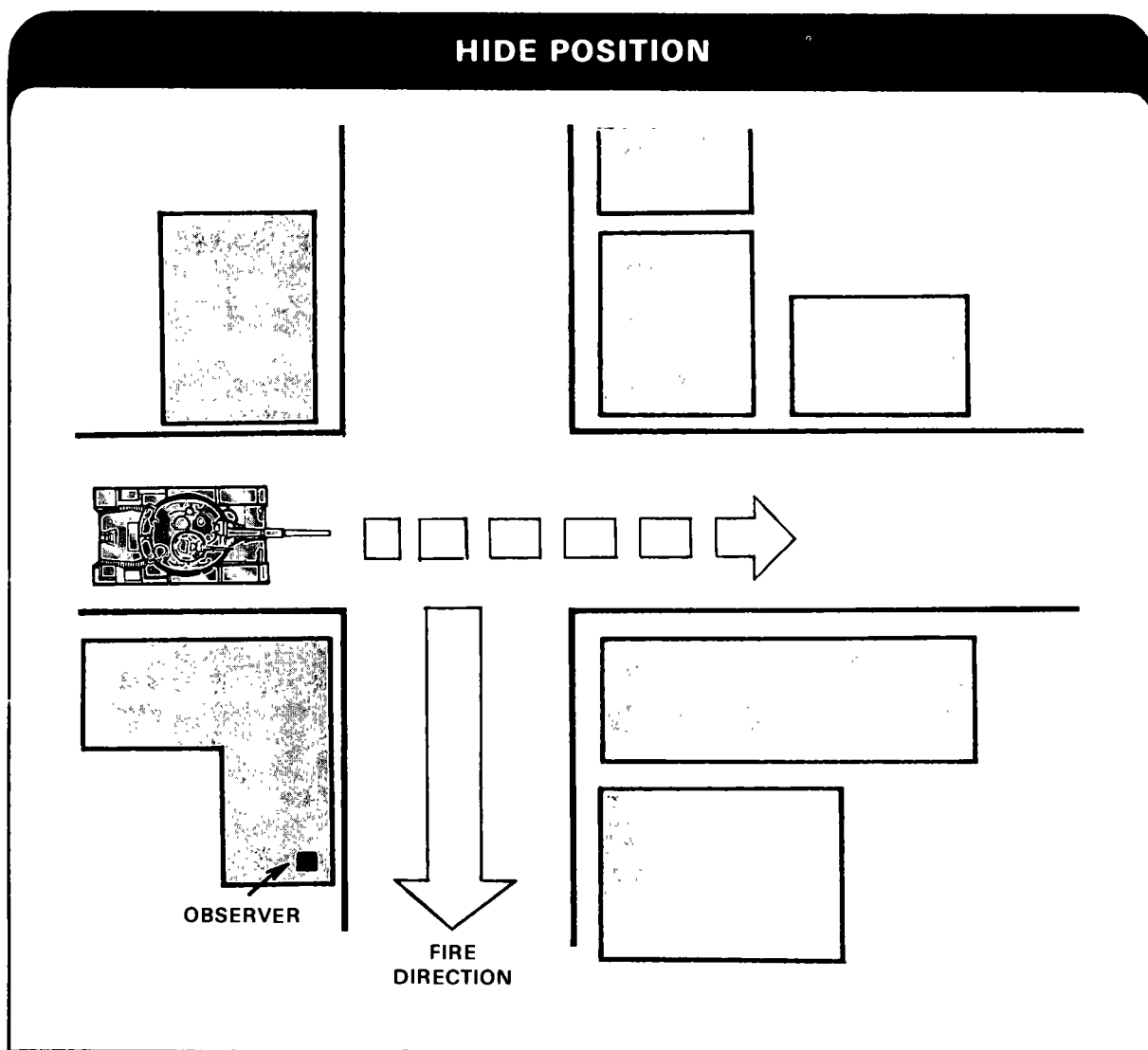
TOPVIEW



SIDEVIEW



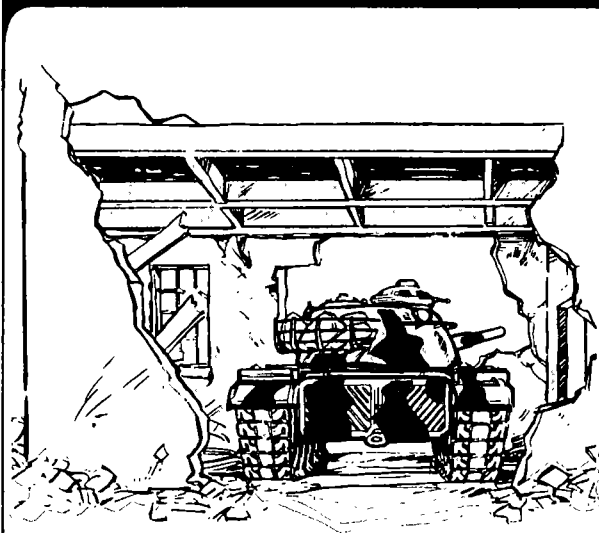
The HIDE position covers and conceals the vehicle until time to move into position for engagement of enemy targets. Since the crew will not be able to see advancing enemy forces, an observer from the vehicle or a nearby infantry unit must be concealed in an adjacent building to alert the crew. The engagement technique employed is for the observer to acquire the target and signal the tank to move to the firing position and shoot, and finally for the tank to move to an alternate position to preclude compromise of one location.



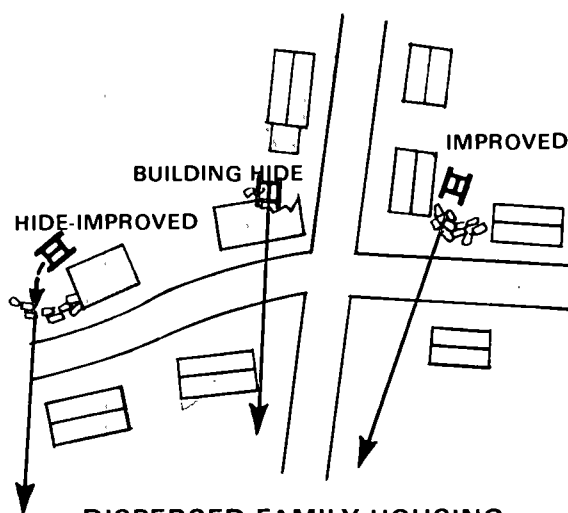
The BUILDING HIDE position conceals the vehicle inside a building. Caution must be exercised, if basement hide positions are inaccessible, to insure that building floors will support the vehicle. Engineers will be

required to evaluate the building's floor strength and to prepare an entrance and exit for the vehicle. Once the position has been detected, it should be evacuated to avoid enemy fires.

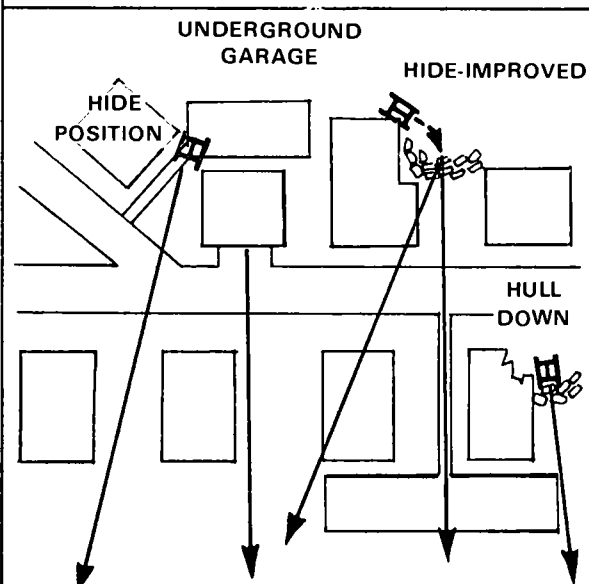
BUILDING HIDE POSITION



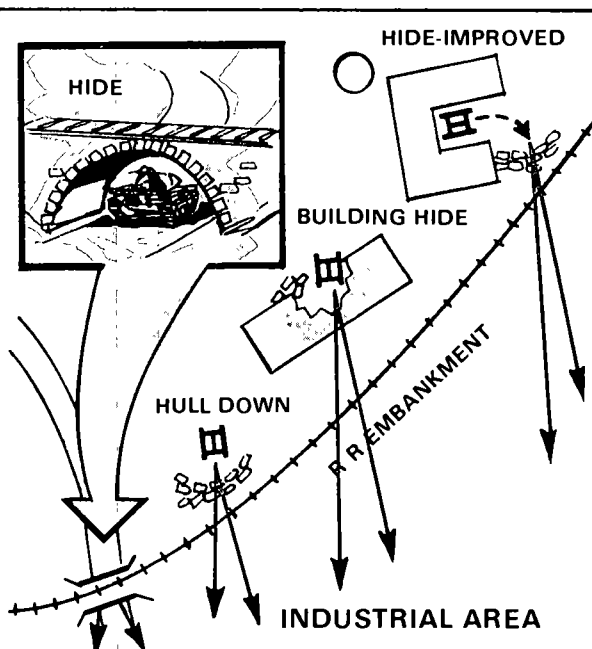
BUILDING HIDE POSITION



DISPERSED FAMILY HOUSING



HIGHRISE AREA



INDUSTRIAL AREA

APC POSITIONS

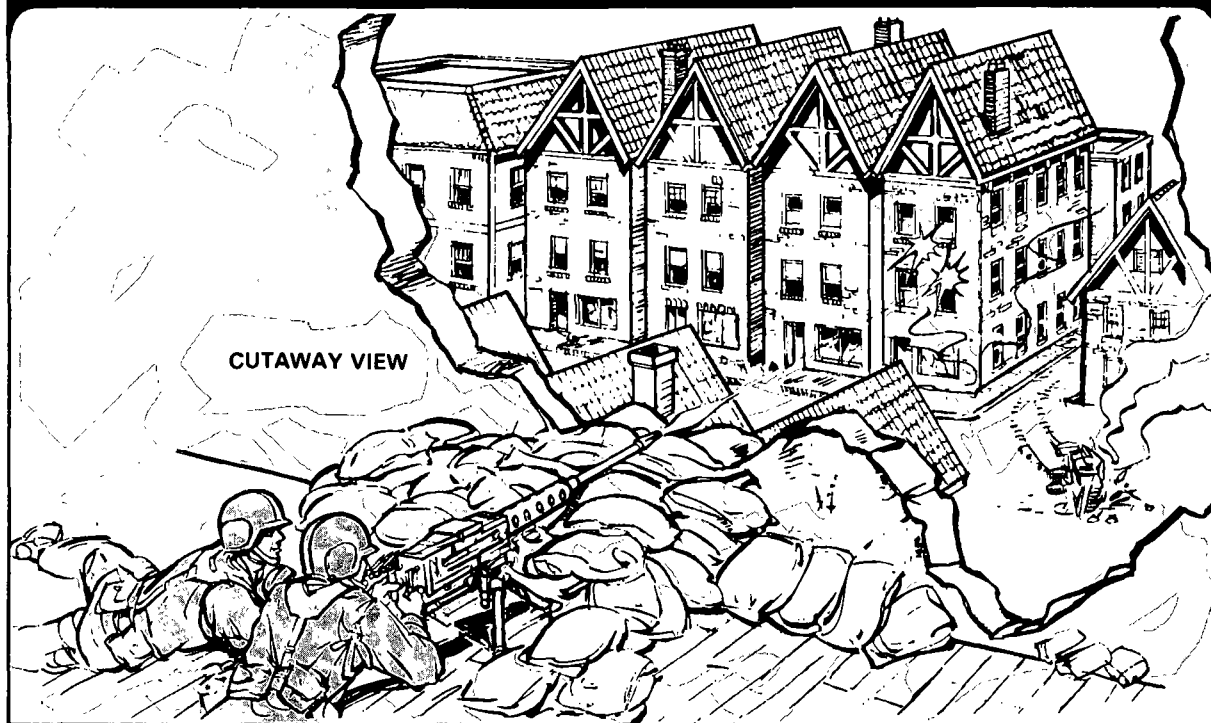
APCs provide mobile, long-range, hard hitting, rapid fires with caliber .50 machineguns. The machinegun, mounted or dismounted, is integrated into the overall defensive fire plan.

The caliber .50 machinegun may be employed on the urbanized terrain's outer edge for use against personnel at ranges out to 2,200 meters. It should be mounted in a covered position, firing until its location is

subjected to suppressive fires, then relocated using a concealed route to an alternate position.

The caliber .50 machinegun may be employed in depth throughout the city, using the APC as a mobile gun platform and firing down boulevards, between buildings, etc. When dismounted, it may be employed in the upper stories of buildings as a long-range sniper's weapon.

CALIBER .50 EMPLOYED AS A LONG-RANGE WEAPON



The caliber .50 may also be used to start fires with tracer rounds, to penetrate moderately heavy construction materials, or to cover obstacles on approaches to the city beyond the ranges of other direct fire weapons.

M60 machineguns have less range and penetrating power than the caliber .50 machinegun; however, their availability and

light weight make them well-suited to augment heavy machinegun fire, or to be used in areas where caliber .50 machineguns cannot be employed.

EMPLOYMENT CONSIDERATIONS

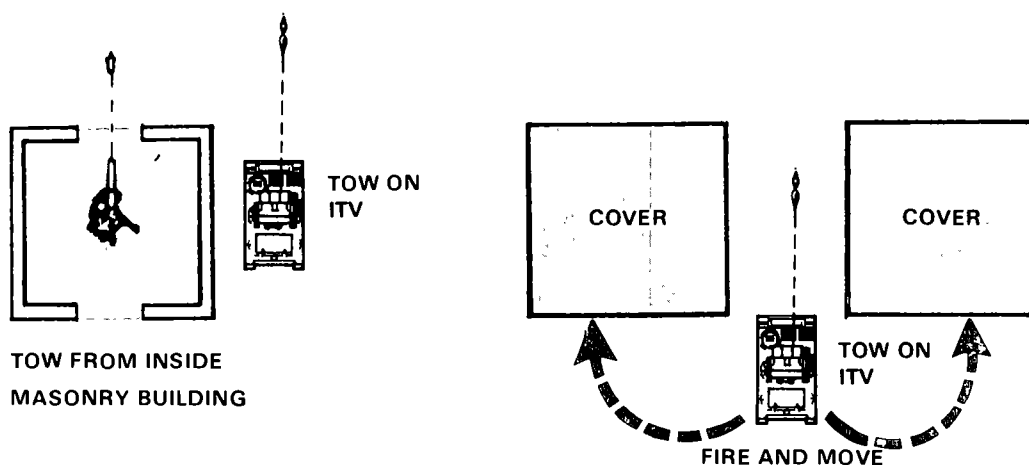
Positions that allow long-range fires from the ground floor are desirable, but

grazing fire from ground level and the ground floor may be obstructed by rubble, requiring machineguns to displace to upper floors to be effective. Sectors for machinegun fires are often limited to streets, thereby reducing mutual support.

ANTITANK GUIDED MISSILE POSITIONS

ATGMs must be employed in areas that maximize their capabilities in urban terrain. The lack of a protective transport may require the weapon to be fired from inside or behind a building, or behind the cover of protective terrain.

ATGM POSITIONS



LEGEND:
ITV - Improved TOW Vehicle

When ATGMs are fired from a vehicle on street level or from a bottom floor, rubble may interfere with missile flight. When firing down streets, missiles must have at least 30 inches of clearance over rubble. **Other obstacles to missile flight include:**

- Trees/brush
- Vehicles
- TV antennas
- Buildings

● Powerlines/wire

● Walls/fences

(See appendix I for employment of ATGM.)

LIGHT ANTITANK WEAPON

LAW is suited for urbanized terrain because its 10-meter minimum arming distance permits employment at close range.

INNER CITY FIRE POSITIONS



Because tank armor is thinnest on top, and because the tank presents the largest target area when engaged from above, LAWs should shoot down onto tanks.

See Appendix I for details on employment and effects of LAWs.

enemy far more than its cost in the number of friendly soldiers employed.

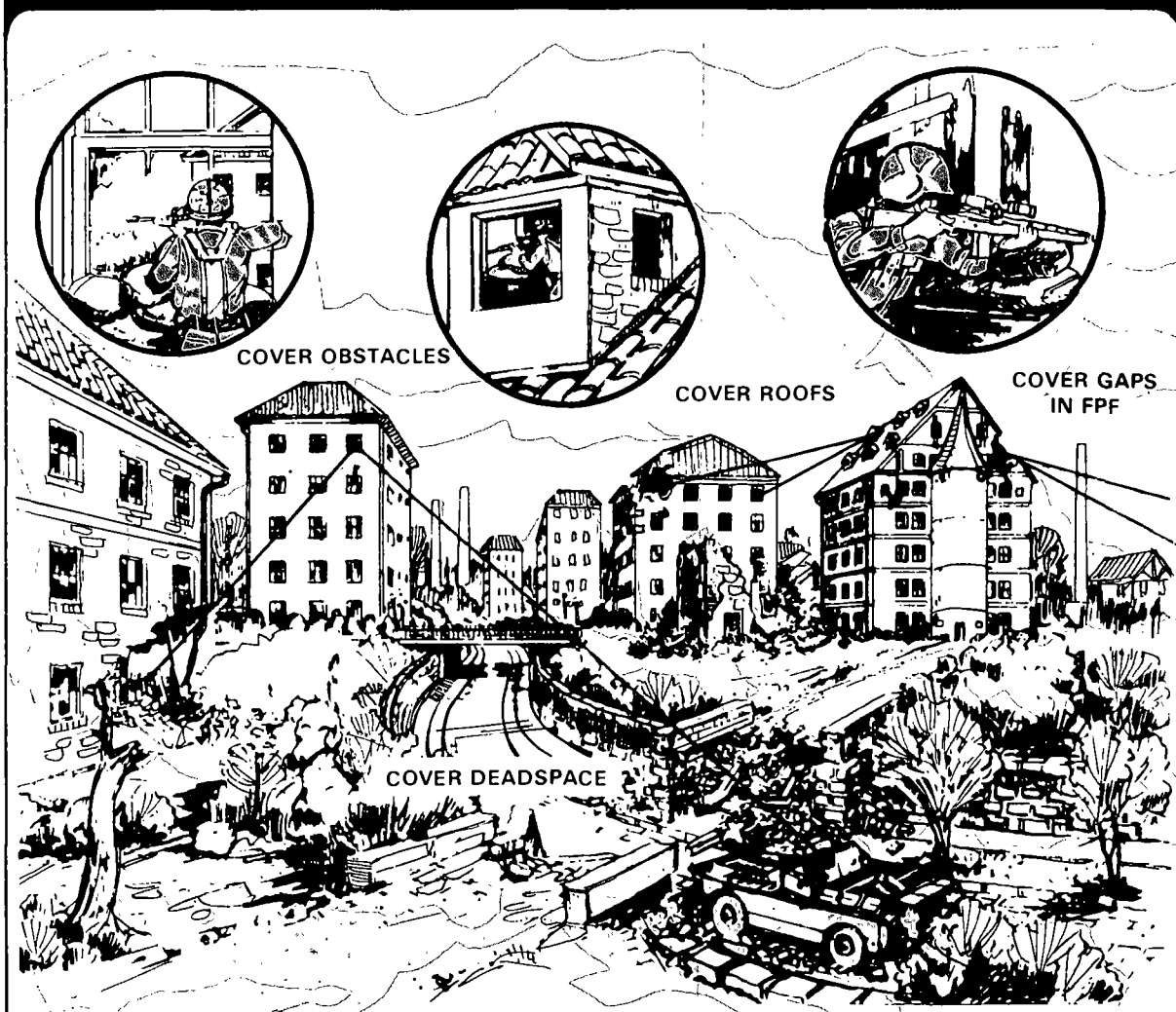
EMPLOYMENT CONSIDERATIONS

SNIPERS

Snipers contribute to the urban battle by shooting selected enemy soldiers. An effective sniper organization will trouble the

A sniper should be given general areas (buildings or group of buildings) in which to position himself, but he selects the best positions for engagements.

SNIPER POSITIONS



The sniper also selects numerous secondary and supplementary positions to cover his areas of responsibility.

Engagement priorities for snipers are determined by the relative importance of the targets to the effective operations of the enemy. **The following are normally sniper targets:**

- **Tank commanders.**
- **Direct fire support weapons crewmen.**

- **Crew-served weapons crewmen.**
- **Officers.**
- **Forward observers.**
- **Radiotelephone operators.**

Urban areas often limit snipers to firing down or across streets, but open parts of urban areas permit engagements at long ranges. Snipers may be employed to cover rooftops, obstacles, deadspace, and gaps in FPFs.

APPENDIX F

How to Attack and Clear Buildings**GENERAL**

At platoon and squad level, the major offensive urban combat task is the attack and clearance of buildings. This appendix describes building clearance by outlining how to:

- **Suppress defensive fires.**
- **Advance infantry assault forces.**
- **Assault and clear a building.**
- **Reorganize the assault force in the cleared building.**

CONTENTS

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REQUIREMENTS	F-2	COMMON CLEARING SITUATIONS	F-9
FIRE SUPPORT	F-2	REORGANIZATION	F-13
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REQUIREMENTS

Regardless of a structure's physical characteristics or the type urban area, there are four interrelated requirements for attacking a defended building. They are:

- **Fire support.**
- **Movement.**
- **Assault.**
- **Reorganization.**

Proper application and integration of those requirements reduce casualties and hasten accomplishment of the mission. The application is determined by the type of building to be attacked and the nature of adjacent urban terrain.

For example, medium-size towns have numerous open spaces, and larger cities have highrise apartments and industrial and transportation areas, separated by parking areas or parks. Increased fire support is required to suppress and obscure enemy gunners covering the open terrain and spaces between buildings. Conversely, the centers of small- and medium-size towns, with twisting alleys and courtyards or adjoining buildings, provide numerous covered routes that may decrease fire support requirements.

FIRE SUPPORT

Fire support and other assistance to aid the advance of the assault force is provided by a support force. This assistance includes:

- **Suppressing and obscuring enemy gunners within the objective building(s) and adjacent structures.**

- **Isolating the objective building(s) with direct or indirect fires to prevent enemy withdrawal, reinforcement, or counterattack.**
- **Breaching walls en route to and in the objective structure.**
- **Destroying enemy positions with direct fire weapons.**
- **Securing cleared portions of the objective.**
- **Providing replacements for the assault force.**
- **Providing resupply of ammunition and explosives.**
- **Evacuating casualties and prisoners.**

The size of the support force is determined by:

- **Type and size of the objective building(s).**
- **Adjacent terrain—open or covered approaches.**
- **Organization and strength of enemy defenses.**

Depending on the situation, the support force may consist of only one infantry fire team, with M60 machineguns, M203 grenade launchers, and M202 multishot flame weapons, supporting another fire team's assault. In situations involving a larger assault force, a platoon or company reinforced with tanks, engineers, and self-propelled artillery may be required to support movement and assault by an adjacent platoon or company. On seizure of objective buildings, the assault force reorganizes and may be required to provide supporting fires

for a subsequent assault. Each weapon is assigned a target or area to cover. Individual small arms place fires on likely enemy weapon positions—loopholes, windows, roof areas. Snipers are best employed in placing accurate fire through loopholes or engaging long-range targets. M202s and M203s direct their fires through windows or loopholes.

LAWs are employed to breach walls, doors, barricades, and window barriers on the ground level of structures. Tank main guns engage first-floor targets and breach walls for attacking infantry. Tank machineguns engage suspected positions on upper floors and in adjacent structures.

In addition to destroying or weakening structures, tank main gun projectiles cause casualties other than by explosive effects by hurling debris throughout the interior of structures.

Artillery and mortars use time fuzes initially to clear the rooftops of exposed personnel, weapons, observation posts, and radio sites. They then use delayed fuze action to cause casualties among the defenders inside the structure by high explosive shrapnel and falling debris.

MOVEMENT

The assault force (**squad/platoon/company**) minimizes enemy defensive fires during movement by:

- **Using covered routes.**
- **Moving only after defensive fires have been suppressed or obscured.**
- **Moving at night or during other periods of reduced visibility.**
- **Selecting routes that will not mask friendly suppressive fires.**

- **Crossing open areas (streets, space between buildings) rapidly under the concealment of smoke and suppression provided by support forces.**
- **Moving on rooftops that are not covered by enemy direct fires.**

In lightly defended areas, the requirement for speed may dictate moving through the streets and alleys without first clearing all buildings. Under such circumstances, the maneuver element should employ infantry to lead the column, closely followed and supported by tanks. When dismounted, rifle elements move along each side of the street, with leading squads keeping approximately abreast of the lead tanks. When not accompanied by tanks, rifle elements move single file along one side of the street under cover of fires from supporting weapons. They are dispersed and move along quickly. Each man is detailed to observe and cover a certain area, such as second-floor windows on the opposite side of the street.

ASSAULT

The assault force, regardless of size, must execute its assault and subsequent clearing operations quickly and violently. Once momentum has been gained, it is maintained to prevent the enemy from organizing a more determined resistance on other floors or in other rooms. It is important that small unit leaders keep the assault force moving, yet not allow the operation to become disorganized.

An assault in an urban area will involve the elementary skills of close combat. **Soldiers must:**

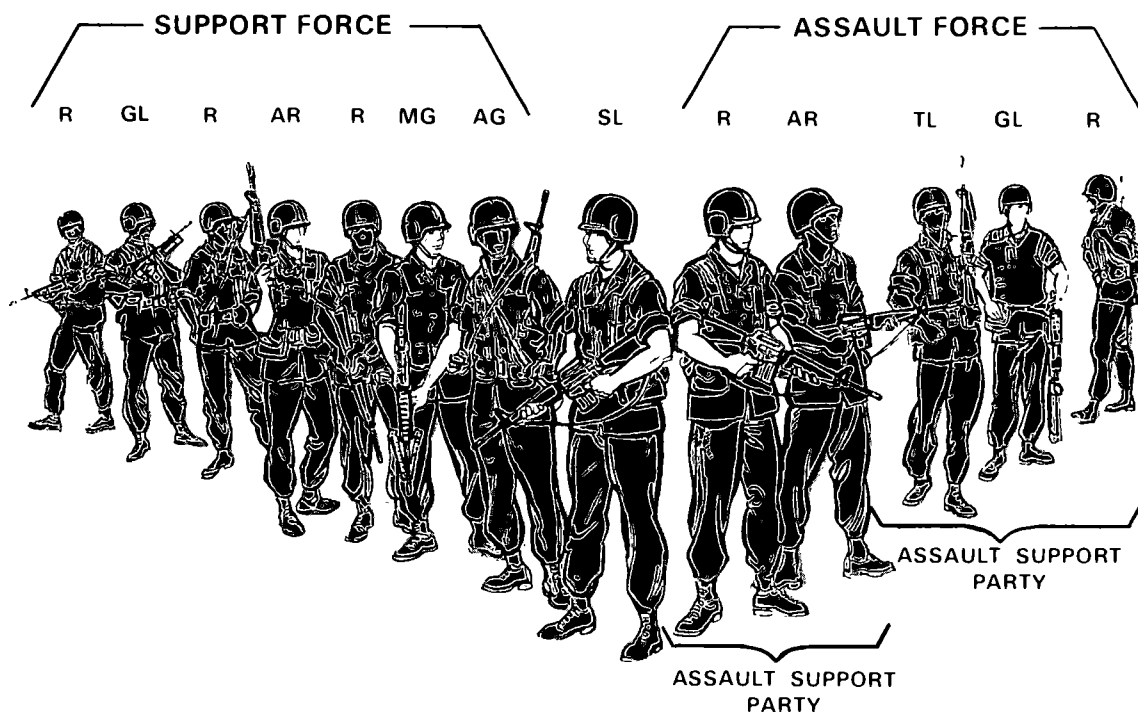
- **Be trained in the techniques necessary to defeat the enemy in a face-to-face encounter.**

- **Keep themselves in top physical condition.**
- **Have the confidence that comes from hard training and high morale.**

The makeup of the assault force will vary from situation to situation; however, the considerations for equipping the force remain the same. The assault force should

consist of several two- to three-man parties carrying only a fighting load of equipment and as much ammunition, especially grenades, as possible. The parties will use fire and movement techniques, one man covering the other as he moves, to clear room by room. The M60 machinegun is normally employed with the support element, but can also be used with the assault force to gain the advantages of its more powerful round.

RIFLE SQUAD (REINFORCED)



The squad leader is located with the element from which he can best control the squad.

WARNING
IF THE SQUAD IS UNDER STRENGTH OR SUFFERS CASUALTIES, PRIORITY IS GIVEN TO KEEPING THE ASSAULT FORCE UP TO STRENGTH AT THE EXPENSE OF THE SUPPORT FORCE.

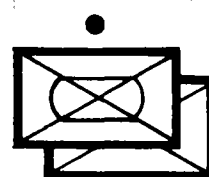
MECHANIZED RIFLE PLATOON

SUPPORT FORCE



3 - 7.62-MM
1 - CAL 50
1 - DRAGON
1 - M202
LAWS

ASSAULT FORCE

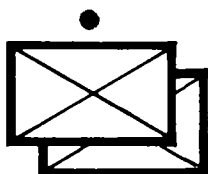


(EACH SQUAD ORGANIZED INTO TWO- OR THREE-MAN ASSAULT/SUPPORT PARTIES)

2 - 7.62-MM
2 - DRAGONS
LAWS
HAND GRENADES

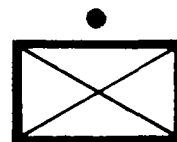
ALTERNATIVE WITH AN INFANTRY RIFLE PLATOON

SUPPORT FORCE



2 - 7.62-MM
2 - DRAGONS
1 - M202

ASSAULT FORCE



LAWS
HAND GRENADES
1 - DRAGON

The criteria for the size of any party are the availability of equipment and personnel and the tactical situation.

Entry at the top and fighting downward is the preferred method of clearing a building. Clearing a building is easier from an upper story since gravity and building construction become assets to the assault force when throwing hand grenades and moving from floor to floor. This method is only feasible, however, when access to an upper floor or the roof of a building can be gained from the windows or roofs of adjoining, secured buildings; or, when enemy air defense weapons can be suppressed and troops transported to the rooftops by helicopter. Using this method, troops breach the roof or common walls with explosives and use ropes to enter the lower floors. Stairs are guarded

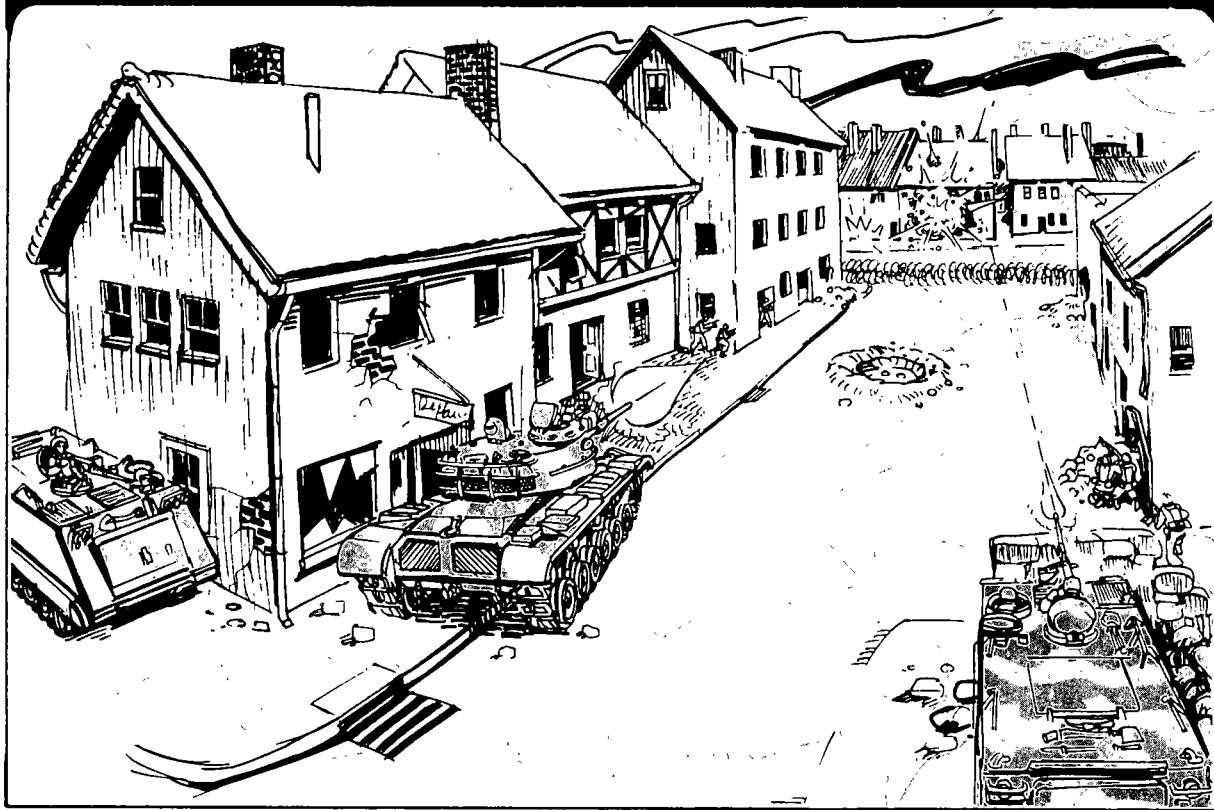
by friendly security elements when not used.

When a building cannot be entered on the top floor, entry may be made on the ground floor. In this situation, the assault force attempts to close on the flank(s) or rear of the building. The assault team clears each room on the ground floor and then, moving up, begins a systematic clearance of the remaining floors.

Preferably, entry is gained through walls breached by explosives or gunfire. Assault teams avoid windows and doors as entry points since they are usually covered by fire or boobytrapped.

The tanks attached to the company can breach the wall by main gunfire for one entry point.

BREACHING OF EXTERIOR WALL BY MAIN GUN FIRE FOR ENTRY



Just before the rush of the assault force, suppressive fires should be increased on the objective by the support force and continued until masked by the advancing assault force. Once masked, fires are shifted to upper windows and continued until the assault force has entered the building. At that time, fires are shifted to adjacent buildings to prevent enemy withdrawal or reinforcement.

Assault parties close on the building rapidly. Prior to entry through the breached wall, a hand grenade is cooked off and thrown vigorously inside. Immediately after the explosion, assault parties enter and spray the interior with automatic fire.

Once inside the building, the priority tasks are to cover the staircase leading to upper floors and the basement, and to seize rooms that overlook approaches to the

building. These actions are required to isolate enemy forces within the building and to prevent reinforcement from the outside.

The assault parties clear each ground floor room and then the basement.

SECURING UPPER FLOORS.

If the assault force is preparing to clear a building from the top floor down, they should gain entrance through a common wall or the roof of an adjoining building. Accompanied by the company's attached engineer squad, the force uses a demolition charge to breach the wall and gain entrance to the top floor. Access to lower floors and rooms may be gained by breaching holes in the floor and having the soldiers jump or slide down ropes to the lower floors. Stairs can be used if they are cleared first.

SECURING UPPER FLOORS



When utilizing the top-to-bottom method of clearing, security requirements remain the same as for the other methods. After the floor is breached to gain access to a lower floor, a grenade is allowed to cook off and is dropped to the lower room before a soldier sprays with automatic fire and drops through the mousehole.

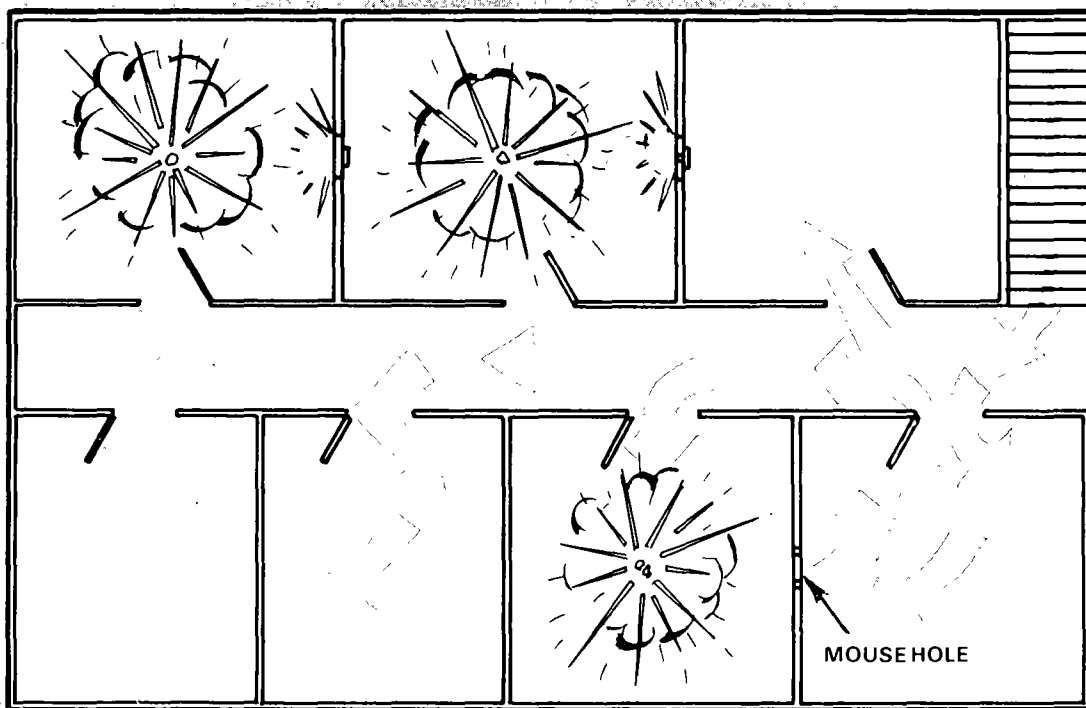
Although the top-to-bottom method is preferred for clearing a building, assaulting the bottom floor and clearing upward will be a common method in all areas except where buildings form continuous fronts.

ROOM CLEARANCE

An assault party (*two-man minimum*) is assigned to clear each room. They enter a room through the doorway, knocking the

door down if necessary. Before entering the room, they cook off a grenade and throw it into the room. After detonation, one man quickly enters and moves out of the doorway to one side or the other, sprays the room with automatic fire, and takes up a position where he can observe the entire room. The assault party should not be silhouetted in the doorway. At this time, the assault party must be prepared to react instinctively to any situation in the room. The second man shouts COMING IN, enters, and conducts a systematic search of the room, avoiding silhouetting himself in windows. In like manner, a soldier leaving a room through an entrance covered by another soldier would shout COMING OUT. It is important that soldiers are aware of each other's location at all times.

VARYING TECHNIQUES FOR CLEARING ROOMS



Avoid clearing rooms in the same way every time. Vary the technique so that the enemy cannot prepare for the assault. As rooms are cleared, doors should be left open and a predetermined mark (*chalk, tape, spray paint*) placed on the doorjamb or over the door.

BASEMENT

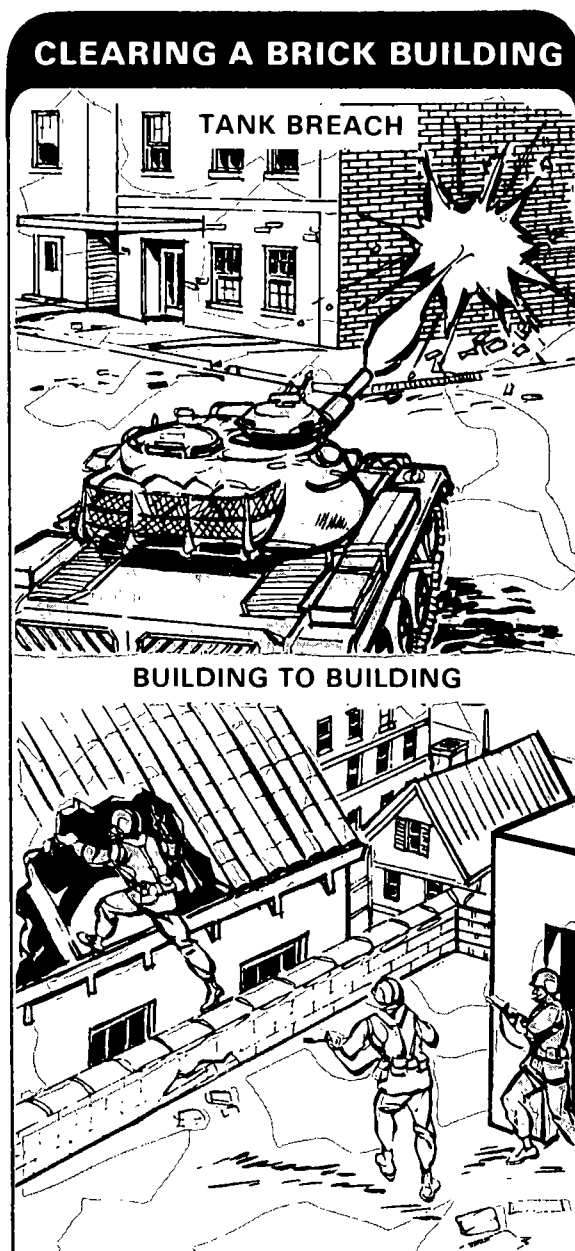
If there is a basement, it should be cleared as soon as possible, preferably at the same time as the ground floor. The procedures for clearing a basement are essentially the same as for any other room or floor. However, important differences do exist. Basements will often contain entrances to tunnels such as sewers and communications cable tunnels and should be cleared and secured to prevent the enemy from infiltrating back into cleared areas.

COMMON CLEARING SITUATIONS

BRICK BUILDINGS

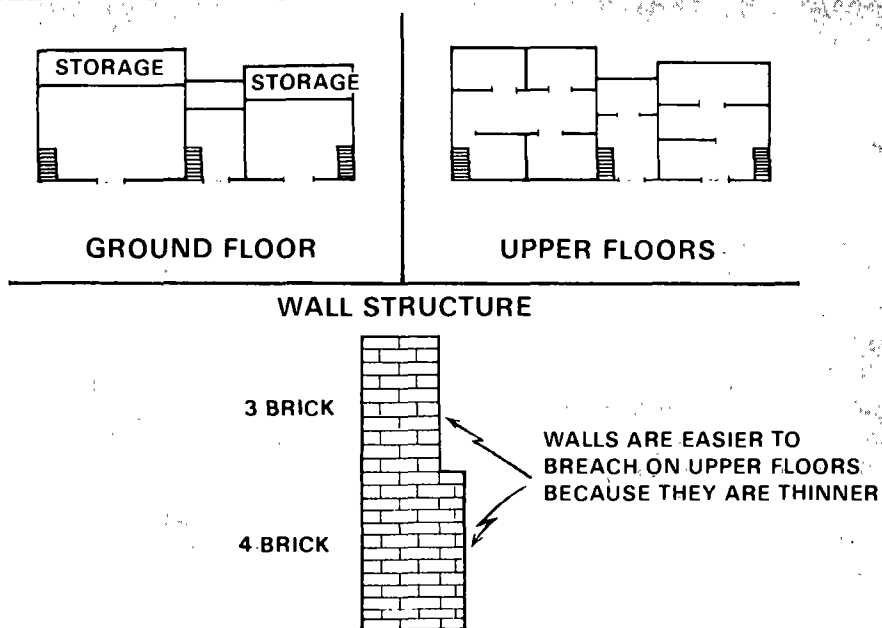
The best way to enter a brick building is to blow a breaching hole in the side with a tank, firing HEAT ammunition. If no tanks are available, a door or window in the rear of the building usually provides better cover and concealment for entry than the front. If there is enough cover and concealment, the assault force should enter the rear of the building at an upper level, using a fire escape or grappling hook. To clear from building to building, the easiest way is to go from rooftop to rooftop. The roofs of brick buildings are usually very easy to breach. The walls between buildings are usually at least three bricks thick (*total of six bricks between buildings*). For that reason, they require a lot of demolitions to breach. Walls are normally easier to breach on an upper floor than a lower floor, because the walls are thinner on upper floors. If rooftops are covered by fire,

and if there are not enough demolitions to breach walls between buildings, going from rear to rear of the buildings is safer than going from front to front.



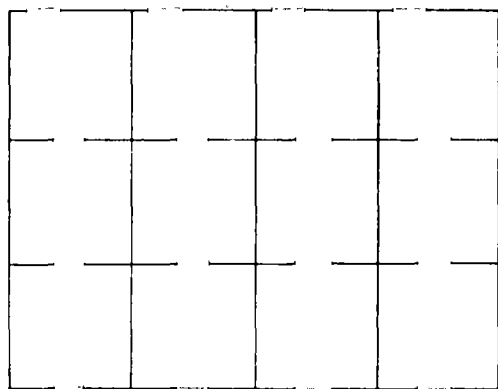
Floor plans in brick buildings are different at ground floor level than on upper levels.

FLOOR PLANS OF BRICK BUILDINGS

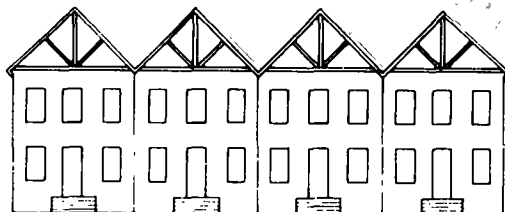


Brick houses have similar floor plans on each floor. Therefore, ground floors are cleared the same way as upper floors.

SIMILAR FLOOR PLANS



FLOOR PLANS ARE THE SAME
ON ALL FLOORS



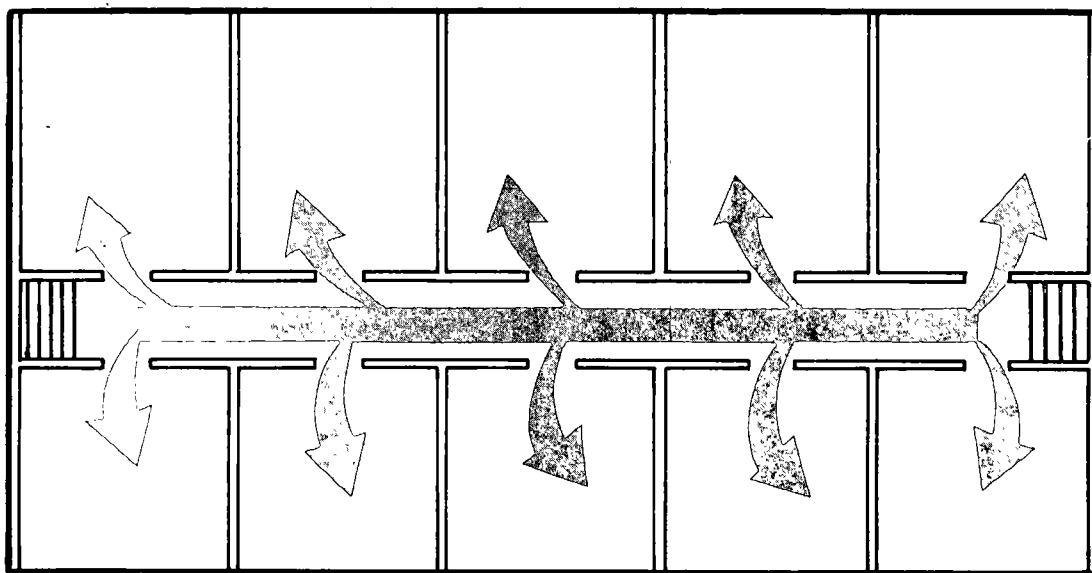
BOX-WALL PRINCIPLE BUILDINGS

Box-wall buildings often have reinforced concrete walls. Such walls are very difficult to breach because of the reinforcing bars. As a result, the best way to enter is to blow down the door or to blow in one of the side windows.

The floor plan of these buildings is very predictable. Therefore, clearing will consist of clearing rooms off a central hallway. Interior walls are also constructed of reinforced concrete, so they are also very difficult to breach. The stairways at the ends of the building must be secured during clearing.

BOX-WALL PRINCIPLE BUILDINGS

FULL WINDOWS TO OUTSIDE



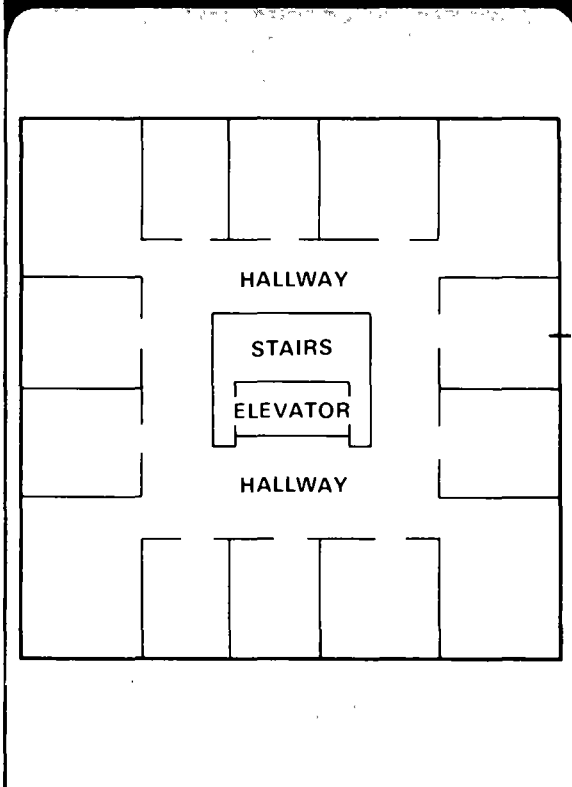
PROTECTED
MOVEMENT
ROOM TO
ROOM

EACH ROOM
HAS 6"-8" WALLS
FLOORS
CEILINGS

HEAVY-CLAD FRAMED BUILDINGS

These buildings are relatively easy to breach, because a tank can breach a hole in the cladding. Their floor plans are oriented around a stairway or elevator, which must be secured during clearing. The interior walls of these buildings can be breached, although they may require use of demolitions.

HEAVY-CLAD FRAMED BUILDINGS

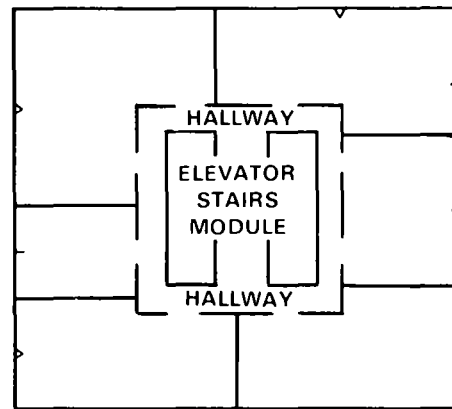


LIGHT-CLAD FRAMED BUILDINGS

In light-clad framed buildings, the clearing tasks are basically the same: secure the central stairway and clear in a circular pattern. Walls are easier to breach. They are usually thin enough to be breached with an ax.

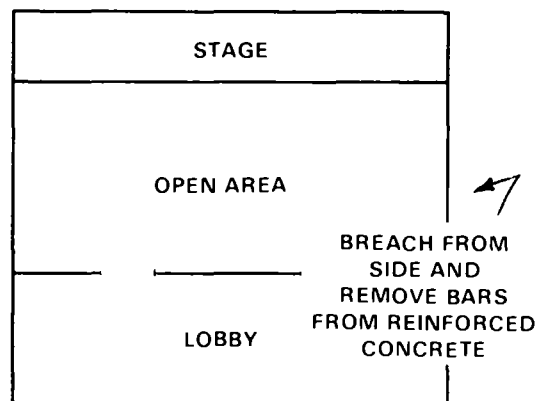
LIGHT-CLAD FRAMED BUILDINGS

LIGHTWEIGHT PARTITIONS
EASY CIRCULATIONS BETWEEN ROOMS



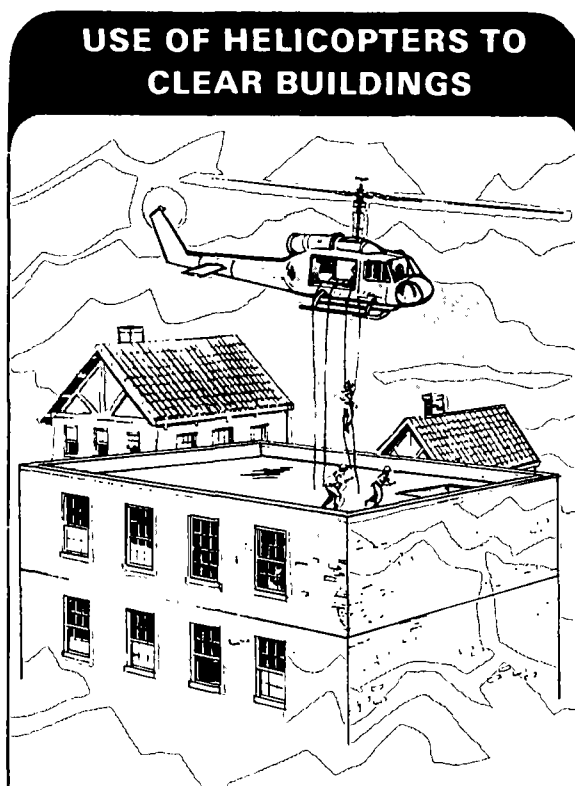
Public gathering places, warehouses, and parking garages consist of large open bays. It is important to remember that some of the walls are reinforced concrete. Reinforced concrete is hard to breach because of the reinforcing bars.

PUBLIC GATHERING PLACES



USE OF HELICOPTERS

Helicopters can be used to clear buildings only when the air defense threat around the buildings is suppressed. The best technique to use is the helicopter rappel. If the rappel cannot be used, the helicopter can hover a few feet off the roof and the troops can dismount. The only buildings on which helicopters can normally land are those that have special heliports on the roofs and parking garages.



REORGANIZATION

Reorganization of the assault force in a cleared building must be rapid to repel enemy counterattacks. After securing a floor (*bottom, middle, or top*), selected members of the assault force will be assigned to cover potential enemy counterattack routes to the building. Those sentinels will alert the

assault force and place a heavy volume of fire on enemy forces approaching the building. They guard:

- **Enemy mouseholes between adjacent buildings.**
- **Covered routes to the building.**
- **Underground routes into the basement.**
- **Approaches over adjoining roofs.**

As the remainder of the assault force completes search requirements, they are assigned defensive positions. After the building has been cleared, the following actions are taken:

- **Resupply and redistribute ammunition.**
- **Mark the building to indicate to friendly forces that the building has been cleared.**
- **Assume an overwatch mission and support an assault on another building.**
- **Treat and evacuate wounded.**
- **If the building is to be occupied for any period of time, start development of a defensive position.**

URBAN ASSAULT FUNDAMENTALS

The following fundamentals are to be considered when assaulting buildings:

- Each soldier must know his responsibilities and his role in the support or assault force.
- Close and continuous coordination is required between the support force and assault force.
- Each assault party member must know the point at which he will enter the objective building.
- When entering a building, avoid using doors and windows. Use explosives or shell holes to gain entry.
- Make maximum use of camouflage, cover, and concealment.
- Use suppressive fires, cover, and smoke when moving through streets and open space between buildings.
- Use buildings adjacent to the objective to mask enemy fires in the final assault.
- Use grenades before entering a building, basement, and all rooms.
- Vigorously throw grenades into rooms in order to deny the enemy an opportunity to throw them back.
- Use automatic fire in three-round bursts when entering and clearing a room.
- In buildings with lightly constructed interior walls and floors, use M16 and M60 fires to clear rooms by firing through walls, ceilings, and floors. M60 machineguns with their heavier bullet are very effective in this role.
- Avoid setting patterns of clearing; vary entry methods from room to room and floor to floor.
- Be constantly alert for boobytraps in doors, windows, halls, stairs, and furniture. Do not attempt to disarm them, but mark for later disarming by trained engineers. If a boobytrap must be removed by untrained personnel, evacuate the building, destroy the boobytrap in place with explosives, and reclear the building.
- Consolidate immediately after clearing a building.

APPENDIX G

Use of Obstacles and Mines**GENERAL**

Obstacles and mines are used extensively in urban combat to allow the defender to canalize the enemy, impede his movement, and disrupt his attack.

OBSTACLES

Obstacles are designed to prevent movement by personnel, separate infantry from tanks, and slow or stop armor.

**ANTIPERSONNEL
OBSTACLES**

Antipersonnel mines, barbed tape or wire, boobytraps, and exploding flame devices are used to construct antipersonnel obstacles. These obstacles are used to block the following infantry approaches:

- Streets.
- Buildings.

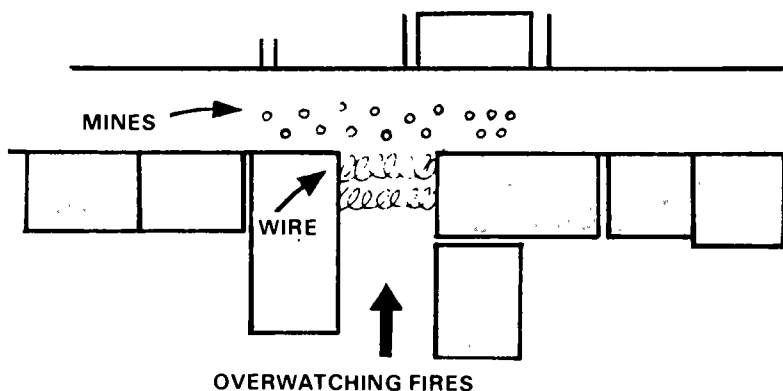
- Roofs.
- Open spaces.
- Deadspace.
- Underground systems.

CONTENTS

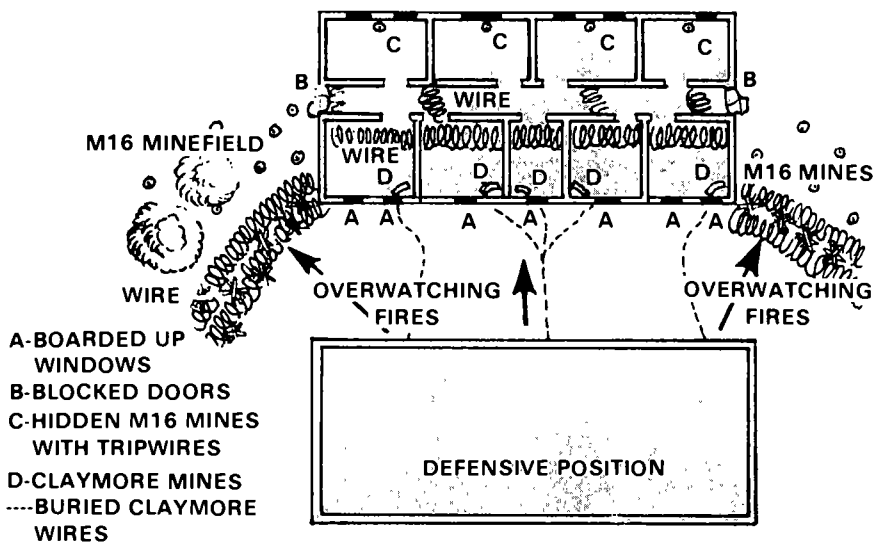
GENERAL	G-1
OBSTACLES	G-1
MINES	G-6
DETECTING ENEMY MINES AND BOOBYTRAPS	G-11

ANTIPERSONNEL OBSTACLES

STREET OBSTACLES



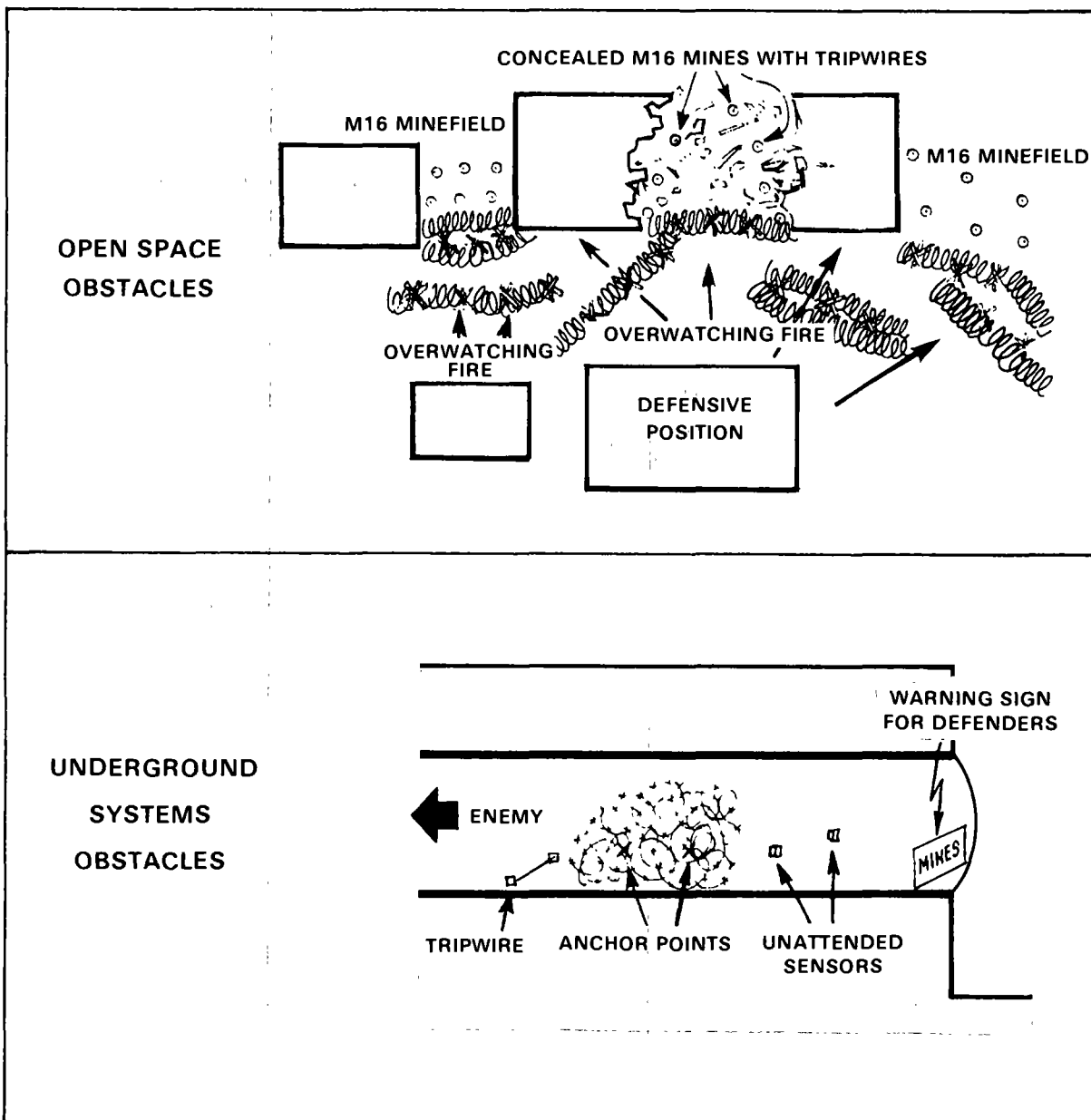
BUILDING OBSTACLES



ROOF OBSTACLES



ANTIPERSONNEL OBSTACLES (CONTINUED)



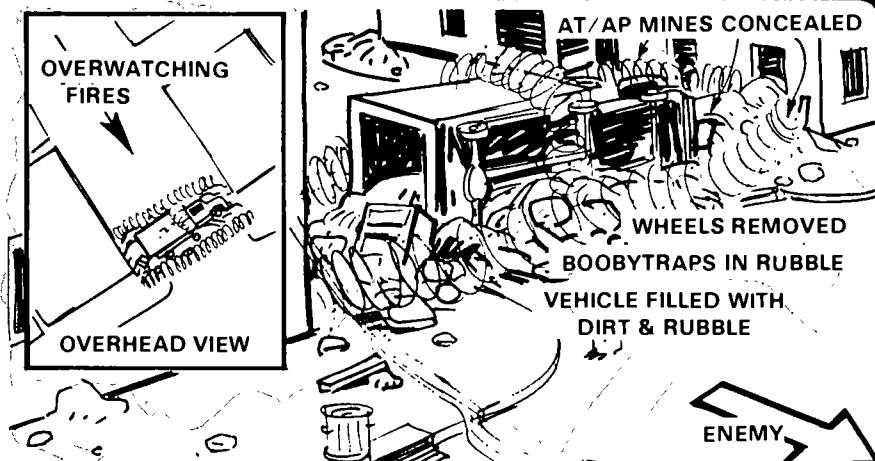
WARNING
DEADSPACE OBSTACLES ARE
DESIGNED AND BUILT TO RE-
STRICT INFANTRY MOVEMENT
IN AREAS THAT CANNOT BE
OBSERVED AND ARE PROTECT-
ED FROM DIRECT FIRES.

ANTIARMOR OBSTACLES

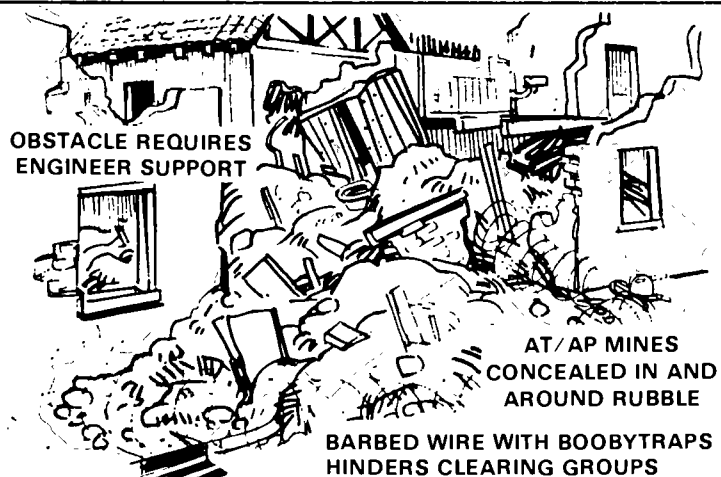
These obstacles are largely restricted to streets. The following illustrations depict some types of antiarmor obstacles.

ANTIARMOR OBSTACLES

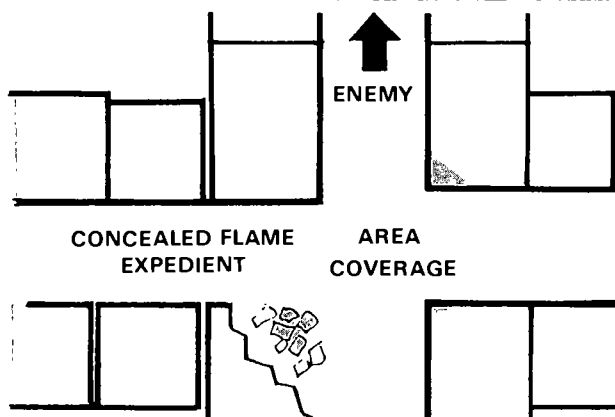
VEHICLE OBSTACLES



RUBBLE OBSTACLES



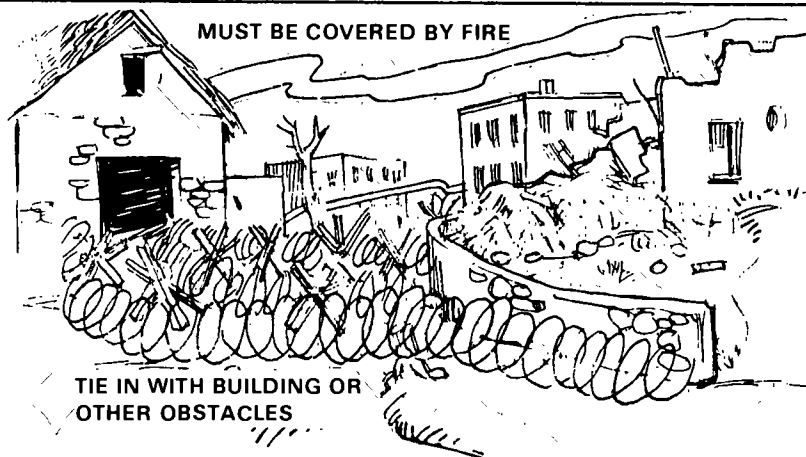
EXPLODING FLAME DEVICE*



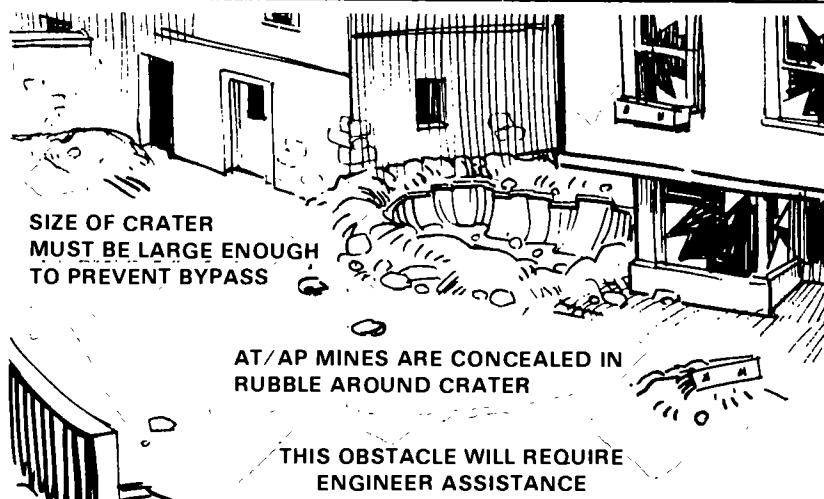
*SEE FM 20-33 FOR DETAILED INSTRUCTIONS.

ANTIARMOR OBSTACLES (CONTINUED)

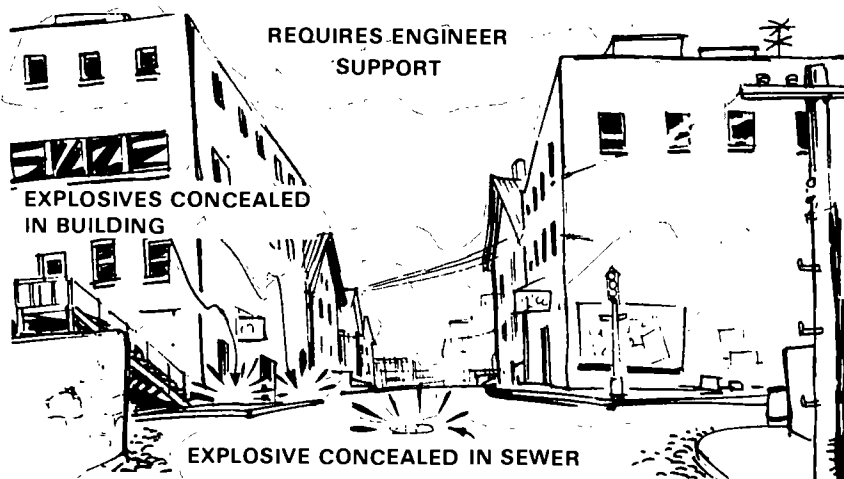
STEEL
HEDGEHOG



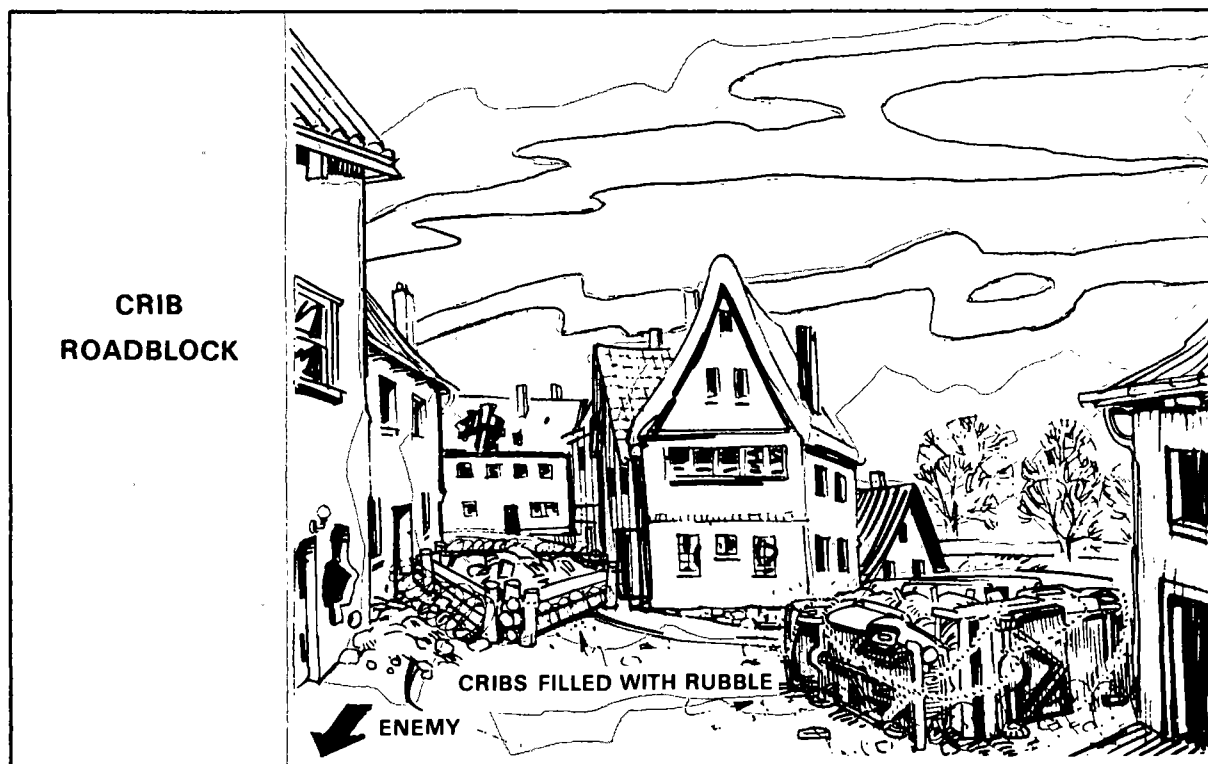
CRATERED
ROAD



CONCEALED
EXPLOSIVES



ANTIARMOR OBSTACLES (CONTINUED)

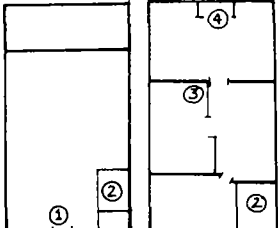


Other obstacles are constructed in buildings to deny enemy infantry covered routes and weapons positions close to friendly defensive positions. Obstacles can be constructed by rubbleing with explosives or flame, by constructing wire obstacles, or by using boobytraps within buildings, and by preparing the building as an explosive or flame trap to be executed after enemy forces have occupied it.

MINES

Mines in urban areas should be recorded on a building sketch. The sketch should include the number of the building (*taken from a city map*) and the floor plan on each floor. The sketch should also include the type of mine and firing device.

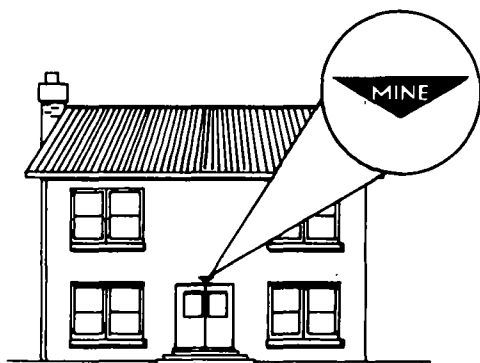
BUILDING SKETCH SHOWING MINES

House Number:		M _N	L _O C	T _P E	Firing Device
	1	Front Door	M-18	Trip Wire	
	2	5th Stair	M-14	Pressure	
	3	Closet	M-14	Pressure	
	4	Behind Dresser	M-16	Trip Wire	
Ground Floor					

When the tactical situation permits, mined buildings should be marked on the friendly side.

EMPLOYMENT OF M14 ANTIPERSONNEL MINES

MARKING MINED BUILDINGS

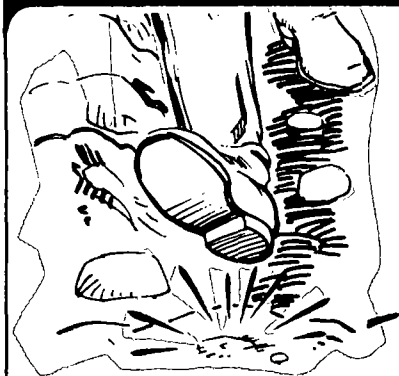


The M14 mine should be used with metallic antipersonnel, antitank, or chemical mines to confuse and hinder enemy breaching attempts.

It must be carefully employed because its light weight makes it easy to displace.

Its size makes it ideal for obscure places, such as stairs and cellars.

EMPLACEMENTS OF M14 ANTIPERSONNEL MINE



IN FOOTPATHS



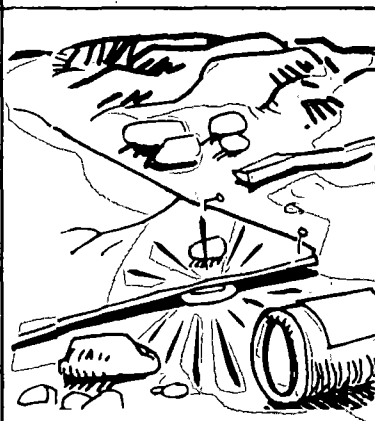
UNDER STEPS



BEHIND DOORS



UNDER THRESHOLDS



HIDDEN UNDER RUBBLE



BASE OF WALLS AND FENCES

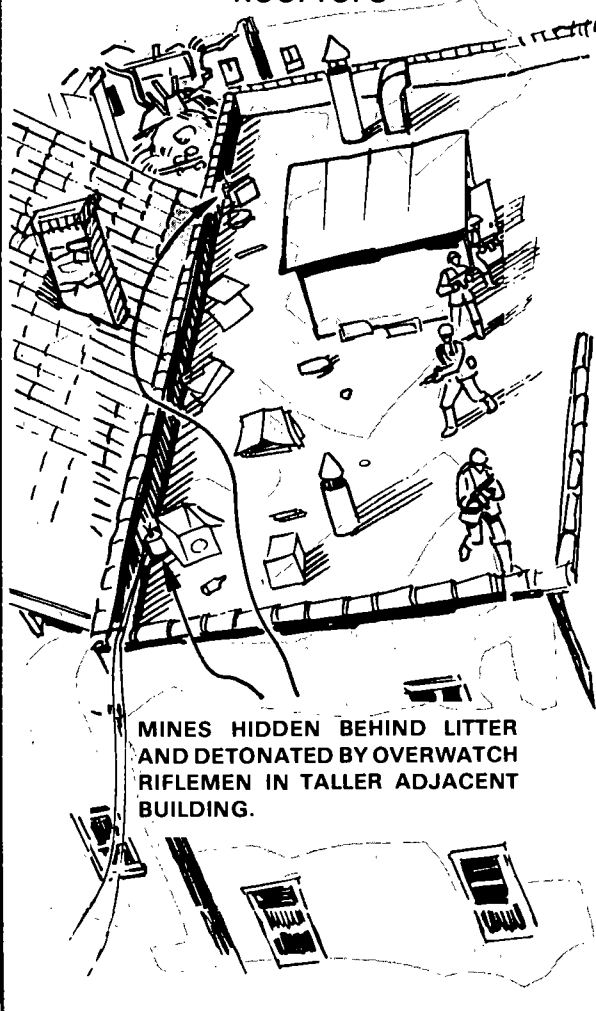
EMPLOYMENT OF THE M16 ANTI-PERSONNEL MINE

The M16 mine is ideal for covering large areas—rooftops, backyards, parks, cellars, etc.

The mine should be expediently rigged for command detonation by attaching a rope, piece of communications wire, etc., to the release pin ring.

EMPLACEMENTS OF M16 ANTIPERSONNEL MINE

ROOFTOPS



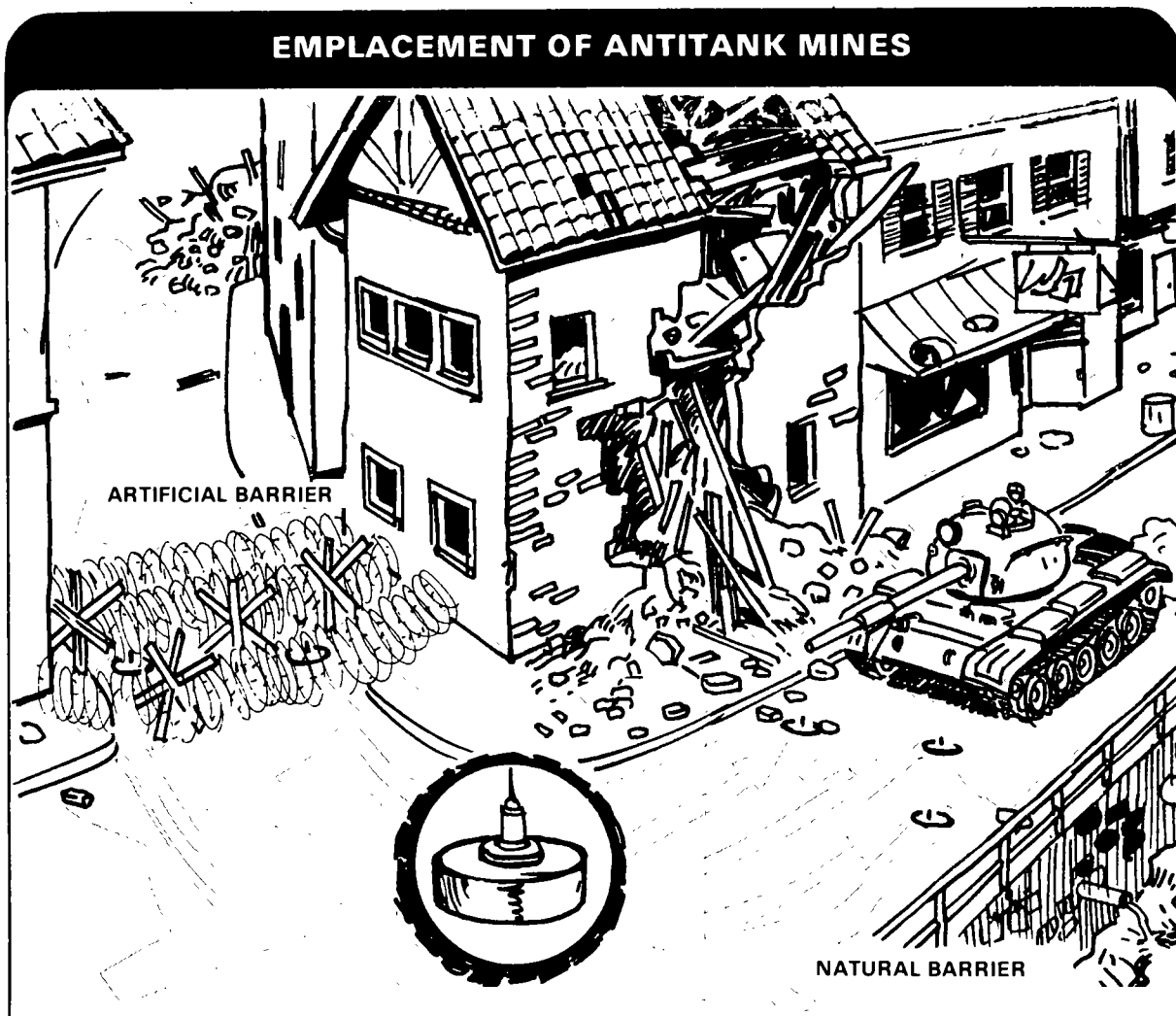
PARKS



EMPLOYMENT OF THE M15, M19, AND M21 ANTITANK MINES

These mines are employed:

- In conjunction with other man-made obstacles and covered with fire.
- In large barrier minefields with the aid of the M57 dispenser.
- In streets or alleys to block routes of advance in narrow defiles.



EMPLOYMENT OF THE CLAYMORE MINE

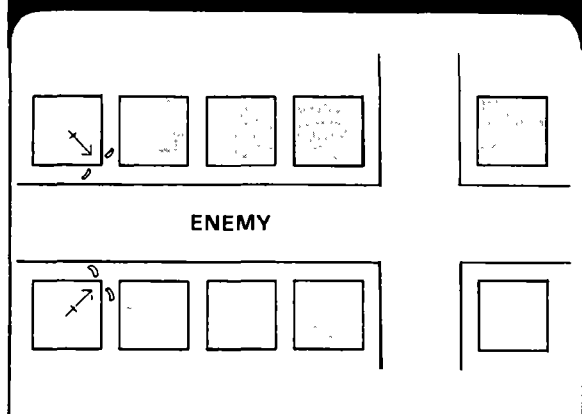
After an attack, Claymore mines can be employed during the reorganization and consolidation phase on likely enemy avenues of approach. The mines do not have to be installed in the streets. They may be employed on the sides of buildings or any other sturdy structure.

The Claymore mine may be used for demolition against thin-skinned buildings and walls, or the 1 1/2 pounds of composition C4 may be removed from the mine and used as an explosive if authorized.

Claymores arranged for detonation by tripwire may be mixed with antipersonnel and antitank mines in nuisance minefields.

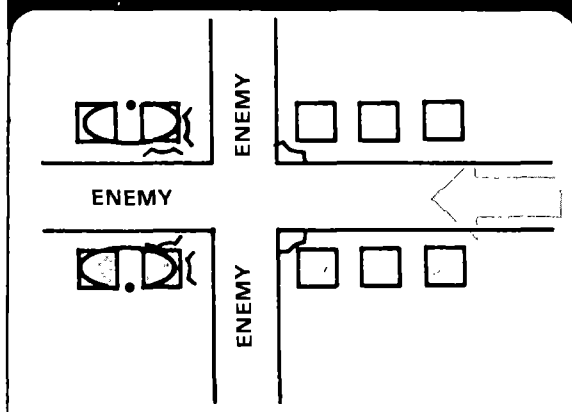
Claymores may be used to fill the deadspace in the final protective fires of automatic weapons.

CLAYMORE BEING USED TO COVER DEADSPACE OF AUTOMATIC WEAPONS



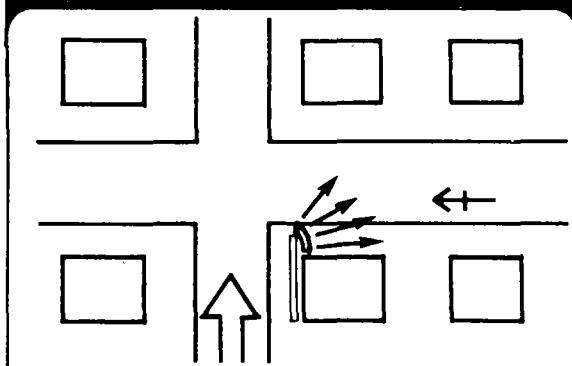
There are several ways the Claymore mine may be used in the offense. For instance, if friendly troops are advancing on a city, Claymores may be used in conjunction with blocking positions to cut off enemy avenues of escape.

CLAYMORE BEING USED TO BLOCK ENEMY AVENUES OF ESCAPE



If friendly troops have to cross a hostile street, Claymores may be attached to long planks, extended around a corner, and detonated. Using the Claymore in this manner could cause friendly casualties; therefore, friendly troops must have some type of protection from the backblast.

CLAYMORE STRAPPED TO A PLANK AND DETONATED AROUND A CORNER



WARNING
SOLDIERS MUST BE PROTECTED FROM THE BACKBLAST.

DETECTING ENEMY MINES AND BOOBYTRAPS

Buildings contain a number of areas and items that are potential hiding places for boobytraps—for example, doors, windows, telephones, stairs, and miscellaneous equipment such as books, canteens, etc.

When moving through a building, do not pick up anything—food, valuables, enemy weapon, etc. They may be rigged with pressure devices that explode when the items are picked up.

Keep soldiers well dispersed so that if a boobytrap explodes casualties will be kept to a minimum.

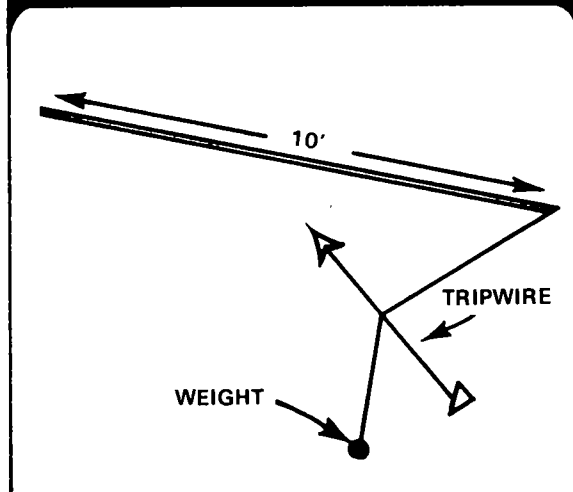
Equipment used in clearing operations are:

- Mine detector.
- Probe.
- Grappling hook.
- Rope.
- Claymore mines.
- C4 explosives.
- Flak vests.

Scout dogs may be used by soldiers to “alert” to tripwires or mines.

To detect tripwires, a 10-foot pole with 5 feet of string tied on one end may be used. By attaching a weight to the loose end of the string, the lead man can find a tripwire when the string snags on it.

DETECTING TRIPWIRES



Many standard antipersonnel mines come packed in boxes and crates. If a soldier comes across explosive storage boxes, he should sketch them and turn the sketch over to the platoon leader or S2 intelligence officer.

When properly treated and interrogated, prisoners and civilians can be a source of information on where and how boobytraps are employed.

Most boobytraps should be neutralized by explosive ordnance disposal (EOD) personnel. If EOD teams are not available, boobytraps may be blown in place. Insure that all personnel are protected by adequate cover. If the boobytrap is in a building, all personnel should go outside before the boobytrap is blown. Engineer tape placed around the danger area is one method of marking boobytraps. If tape is not available, strips ripped from bedsheets will do. If possible, provide a guide through boobytrapped areas.

The following are types of mines and boobytraps that may be encountered.

MINES AND BOOBYTRAPS

PMOZ 2 AP MINE



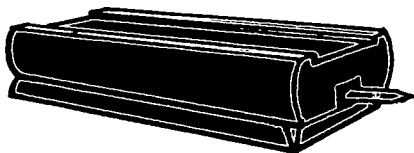
Resembles a German potato-masher grenade. It is planted in the ground and usually detonated by a tripwire.

OZM AP MINE



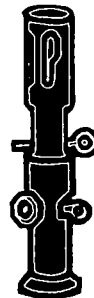
Looks like a mortar round standing on its nose with a base and bracket alongside its body. A tripwire or pressure device can be used to set it off.

PMD-6 AP



Looks like a shoebox made of wood. It is detonated by stepping on it, and it is often used under stairs or courtyard flagstones.

VPF PULL FUZE



A device used with a tripwire to set off charges, large and small.

APPENDIX H

Demolitions**GENERAL**

Demolitions will be used more often during urban combat than during operations in open, natural terrain. Demolition operations should be carried out by the engineers that support the brigade, battalion task force, and company team. However, if engineers are involved in the preparation and execution of the barrier plan, infantrymen can prepare mouseholes, breach walls, and rubble buildings themselves, assisted and advised by the brigade task force or team engineer.

**DEMOLITION
KITS**

The demolition kit used by the engineer squad is the same kit organic to all infantry companies. The demolition kit consists of the items listed.

CONTENTS

GENERAL	H-1
DEMOLITION KITS	H-1
OFFENSIVE USE OF DEMOLITIONS	H-3
DEFENSIVE USE OF DEMOLITIONS	H-4
SAFETY CONSIDERATIONS	H-7

DEMOLITION KIT	
QTY	ITEM
2	BAG, CANVAS, CARRYING, DEMOLITION KIT.
1	BLASTING MACHINE, 10-CAP CAPACITY, M32.
5	BOX, CAP, 10-CAP CAPACITY, INFANTRY.
1	CHEST, DEMOLITION, ENGINEER PLATOON, M1931.
2	CRIMPER, CAP, M2 (W/FUZE SETTER).
1*	GALVANOMETER, BLASTING (W/CASE AND CARRYING STRAP).
2	KNIFE, POCKET.
2	PLIERS, LINEMAN'S (W/SIDE CUTTER), LENGTH 8-INCH.
1	REEL, WIRE, FIRING, 500 FEET, RL-39A (W/CARRYING STRAPS, W/WINDING DEVICE, W/SPOOL, W/O WIRE).
2	TAPE, COMPUTING, DEMOLITION CHARGE.
	*NEWER DEMOLITION SETS WILL CONTAIN THE TEST SET, BLASTING CAP, M51.
THE FOLLOWING NONEXPLOSIVE COMPONENTS ARE REQUIRED TO COMPLETE THE KIT AND SHOULD BE ON HAND AT ALL TIMES. THEY ARE NOT SUPPLIED WITH THE KIT, AND MUST BE REQUISITIONED SEPARATELY.	
QTY	ITEM
60	ADAPTER, PRIMING, M1A4.
2*	ADHESIVE, PASTE, FOR DEMOLITION CHARGES, 1/2-POUND CAN, M1.
1	CABLE, POWER, ELECTRICAL FIRING, VINYL POLYMER INSULATION, TWO-CONDUCTOR, NO. 18, AWG STRANDED 500-FOOT COIL.
50	CLIP, CARD, M1, DETONATING.
6	INSULATING TAPE, ELECTRICAL, BLACK ADHESIVE, 3/4-INCH WIDE.
1	SEALING COMPOUND, BLASTING CAP, WATERPROOF, 1/2-PINT CAN.
2	TWINE, HEMP, NO. 18, 8-OUNCE BALL.
2	WIRE, ELECTRICAL, ANNUNCIATOR, WAXED, DOUBLE COTTON WRAPPED INSULATION, SOLID SINGLE CONDUCTOR, NO. 20 AWG, 200-FOOT COIL.
	*NEWER DEMOLITION SET MAY CONTAIN ONE ROLL OF PRESSURE-SENSITIVE ADHESIVE FILM, 2 INCHES WIDE, 72 YARDS LONG.

THE EXPLOSIVE COMPONENTS OF THE SET ARE ALSO REQUISITIONED SEPARATELY. LISTED BELOW IS A RECOMMENDED QUANTITY. EXPERIENCE MAY DICTATE THAT QUANTITIES BE CHANGED OR DELETED ENTIRELY BASED ON LOCAL GUIDANCE OR USAGE.

QTY	ITEM
50	CAP, BLASTING, SPECIAL, ELECTRIC M6.
50	CAP, BLASTING, SPECIAL, NONELECTRIC M7.
40/80	CHARGE, DEMOLITION, BLOCK, M5A1, 2.5-POUND/M112 1.25-POUND COMPOSITION C4.
50	CHARGE, DEMOLITION, BLOCK, 1 POUND (TNT).
5	CORD, DETONATING, 1,000-FOOT SPOOL.
5	DESTRUCTOR, EXPLOSIVE, UNIVERSAL M10.
2	FUZE, BLASTING, TIME, 50-FOOT COILS.
50	IGNITER, BLASTING FUZE, M60, WEATHERPROOF.
20	CHARGE, DEMOLITION: M118, 2 POUNDS.

OFFENSIVE USE OF DEMOLITIONS

When assaulting or clearing an urban area, demolitions allow the maneuver commander the ability to create an avenue of approach through buildings. As discussed earlier in this text, the infantry commander forms his unit's personnel into assault teams and overwatch teams for seizing and clearing buildings.

Every other man in an assault team may carry demolitions, and other selected personnel may carry blasting caps. In a fire team, one man should carry the blasting caps and the remaining members should carry demolitions. The same man should not carry both the explosives and the blasting caps. As the demolitions are expended by the assault

teams, they may be replaced by explosives carried by the overwatch force.

One of the most difficult breaching operations faced by the assault team is the breaching of masonry and reinforced-concrete walls. When demolitions must be used, composition C4 is the ideal demolition charge to use. Normally, building walls are 15 inches thick or less. Assuming that all outer walls are constructed of reinforced concrete, a rule of thumb for breaching is to place 10 pounds of C4 against the target between waist and chest height and detonate. That will normally blow a hole large enough for a man to get through. The amounts of TNT required to breach concrete are as follows.

REINFORCED CONCRETE		
THICKNESS OF MATERIAL	TNT	SIZE OF OPENING
UP TO 10 CM (4 INCHES)	5 KG (11 LBS)	10 TO 15 CM (4 TO 6 INCHES)
10 TO 15 CM (4 TO 6 INCHES)	10 KG (22 LBS)	15 TO 25 CM (6 TO 10 INCHES)
15 TO 20 CM (6 TO 8 INCHES)	20 KG (44 LBS)	20 TO 30 CM (8 TO 12 INCHES)
NONREINFORCED CONCRETE MASONRY		
THICKNESS OF MATERIAL	TNT	SIZE OF OPENING
UP TO 35 CM (14 INCHES)	1 KG (2.2 LBS)	35 CM (14 INCHES)
35 TO 45 CM (14 TO 18 INCHES)	2 KG (4.4 LBS)	45 CM (18 INCHES)
45 TO 50 CM (18 TO 20 INCHES)	3 KG (6.6 LBS)	50 CM (20 INCHES)

However, metal reinforcing rods will not be cut by this charge. Once exposed, they can be removed by using saddle or diamond charges. Before emplacing the charges on the rods, hand grenades should be thrown into the opening to clear the area of enemy (see *FM 5-25, chapter 3*).

Mouseholes provide the safest method of moving between rooms and floors. They can be created with C4. Since C4 comes packaged with an adhesive backing or can be emplaced using pressure-sensitive tape, it is ideal for this purpose. When using C4 to blow a mousehole in a lath and plaster wall, one block should be cut into three equal parts. Each part should be placed on the wall an equal distance apart, from neck to knee

height. The charges should be primed with detonating cord or three electric blasting caps to obtain simultaneous detonation. Charges emplaced in this manner will blow a hole large enough for a man to get through.

DEFENSIVE USE OF DEMOLITIONS

The use of demolitions in defensive operations is the same as in offensive operations. When defending an urban area, demolitions are used to create covered and concealed routes through walls and buildings that may be used for withdrawal, reinforcement, or counterattack. Demolitions are also used to create obstacles and clear fields of fire.

Infantrymen will use demolitions for creating mouseholes and constructing command-detonated mines. Expedient C4 satchel charges may be concealed in likely enemy weapons firing positions or on movement routes. Expedient shaped charges (*effective against lightly armored vehicles*) may also be emplaced on routes of mounted movement when integrated into antiarmor ambushes.

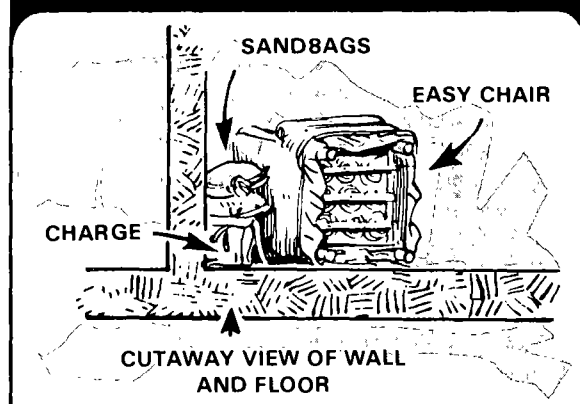
SELECTIVE RUBBLING

The engineers must furnish technical assistance for selective rubbling. Normally, buildings can be rubbled by using shaped charges or C4 on the supports and major beams of buildings.

CHARGE CONSTRUCTION AND PLACEMENT

Charges should be placed directly against the surface to be breached, unless a shaped charge is used. Whenever possible, demolitions should be tamped; that dramatically increases their effectiveness. Tamping material may be sandbags, rubble, or in some cases desks and tables.

USING A CHAIR TO TAMP BREACHING CHARGE



For most exterior walls, tamping of breaching charges may be impossible due to

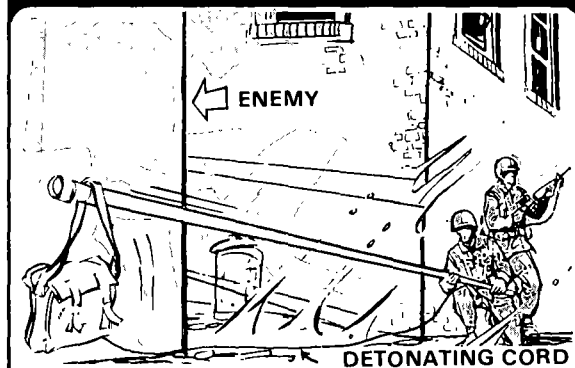
enemy fire, in which case the untamped charge requires twice the explosive charge to produce the same effect as an elevated charge.

BREACHING REINFORCED CONCRETE

THICKNESS OF CONCRETE	METHODS OF PLACEMENT			
				
FEET	POUNDS OF TNT	POUNDS OF C4	POUNDS OF TNT	POUNDS OF C4
2	14	11	28	21
2½	27	21	54	41
3	39	30	78	59
3½	62	47	124	93
4	93	70	185	138
4½	132	99	263	196
5	147	106	284	211
5½	189	141	376	282
6	245	186	490	366

In some cases where enemy fires prevent approach to the wall, it will be necessary to attach the breaching charge to a pole and slide it into position for detonation at the base of the wall untamped. Small-arms fire will not detonate C4 or TNT. The charge must be primed with detonating cord.

CHARGE PLACEMENT WHEN SMALL-ARMS FIRE CANNOT BE SUPPRESSED



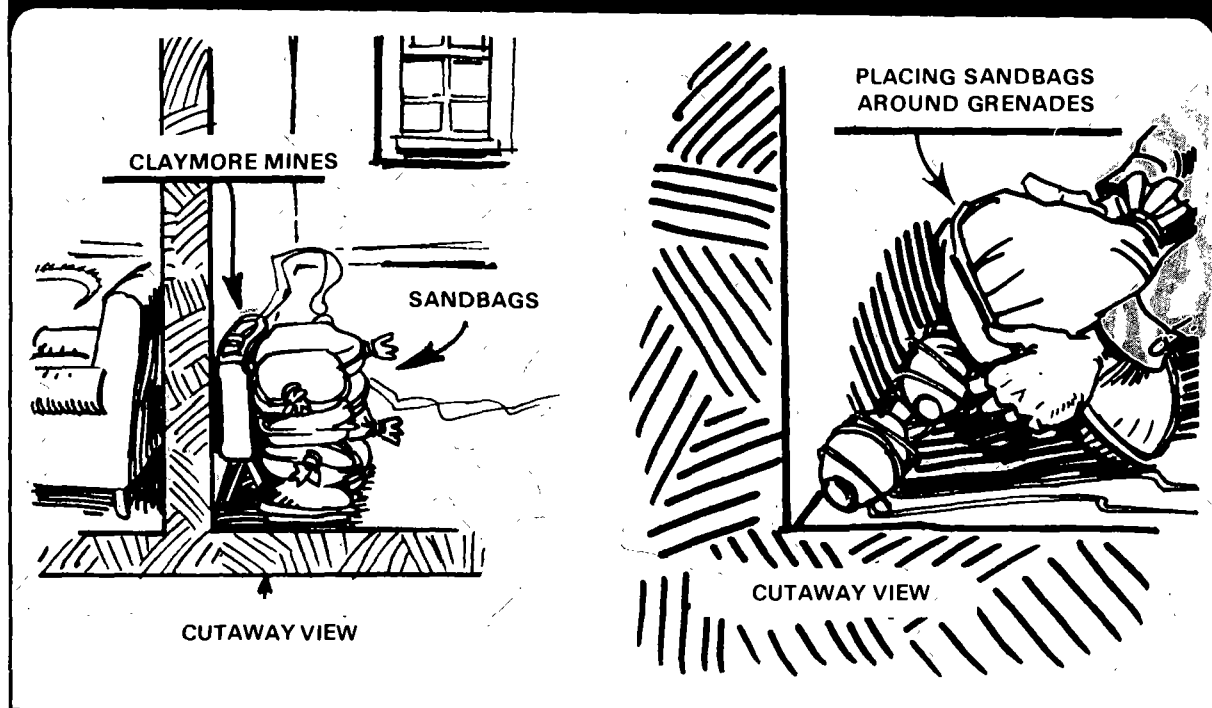
WARNING
SOLDIERS MUST TAKE COVER
BEFORE DETONATING CHARGES.

BREACHING WALLS WITH HAND GRENADES AND MINES

The internal walls of most buildings function as partitions rather than load-

bearing members. Therefore, smaller explosive charges may be used to breach them. In some cases, in the absence of C4 or other military explosive, internal walls may be breached by using one or more hand grenades or a Claymore mine. These devices should be tamped to increase their effectiveness and to reduce the amount of explosive force directed to the rear.

TAMPING CLAYMORE AND HAND GRENADES TO BREACH INTERNAL WALLS



DISABLING WHEELED AND TRACKED VEHICLES

An expedient device for disabling both wheeled and tracked vehicles is the Molotov cocktail. It is easy to make, the materials are readily available, and the results are very effective because of the close engagement in urban areas. The idea is to get the flame to catch some flammable portion of the vehicle. Usually, it is the fuel or ammunition being transported on the vehicle. **The materials needed are:**

- Container—bottle or any glass container.
- Gas (2 parts).
- Oil (1 part)—30W.
- Rag as a wick.

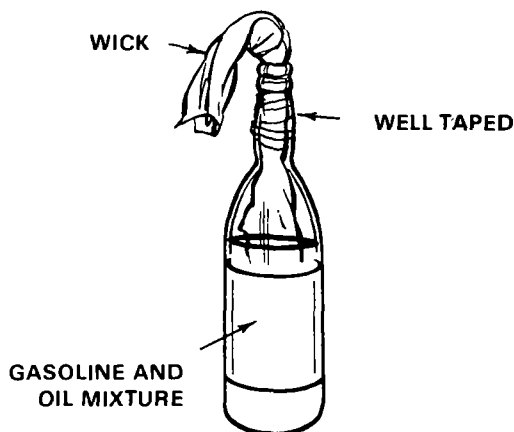
The gas and oil are mixed on the basis of 2 parts gas to 1 part oil. These fuels must be mixed thoroughly. They are put into the

bottle, and soaked into the rag. The rag is then placed in the opening of the bottle as a wick. When a target is sighted, the wick is lit and the bottle is thrown hard enough to break.

WARNING

INSURE THAT A SAFE DISTANCE IS MAINTAINED WHEN THROWING THE MOLOTOV COCKTAIL. CAUTION TROOPS AGAINST DROPPING THE DEVICE. THROW IT IN THE OPPOSITE DIRECTION OF PERSONNEL AND FLAMMABLE MATERIALS. DO NOT SMOKE WHILE MAKING THIS DEVICE.

MOLOTOV COCKTAIL



SAFETY CONSIDERATIONS

The greatest danger to friendly personnel from demolitions is the debris thrown by the explosion, and leaders must insure that protective measures are taken. The safe distance listed in the table on Page H-8 indicate the danger of demolition effects.

MINIMUM SAFE DISTANCES FOR PERSONNEL IN THE OPEN			
POUNDS OF EXPLOSIVE	SAFE DISTANCE IN METERS	POUNDS OF EXPLOSIVE	SAFE DISTANCE IN METERS
1 TO 29	300	150	514
30	311	175	560
35	327	200	585
40	342	225	609
45	356	250	630
50	369	275	651
60	392	300	670
70	413	325	688
80	431	350	705
90	449	375	722
100	465	400	737
125	500	425 AND OVER	750
NOTE: THESE DISTANCES WILL BE MODIFIED IN COMBAT WHEN TROOPS ARE IN OTHER BUILDINGS, AROUND CORNERS, OR BEHIND INTERVENING WALLS.			

Rules for using demolitions:

- Keep the blasting machine under the control of an NCO.
- Wear helmets at all times while firing explosives.
- Handle misfires with extreme care.
- Clear the room and get people protected when blowing interior walls.

Prepare some charges, minus detonators, beforehand to save time (*for example, 10- or*

20-pound breaching charges of C4, expedient shaped charges in No. 10 cans).

- Use C4 to breach hard targets (*masonry construction*).
- Do not take chances.
- Do not handle explosives carelessly.
- Do not divide responsibility for explosive work.
- Do not mix explosives and detonators.
- Do not carry explosives and caps together.

APPENDIX I

The Employment and Effects of Infantry Weapons

GENERAL

The success of an infantry unit in urban combat largely depends on the effective use of its weapons. **Specific characteristics of the city include:**

- **Hard, smooth surfaces.**
- **Obstacles canalizing movement.**
- **Short engagement ranges.**
- **Cover and concealment.**

SMALL ARMS

M16 RIFLE

Effectiveness. The 5.56-mm round will penetrate wooden or plaster walls. Against sandbags or concrete, the M16 has much less penetrating power. At 50 meters, the 5.56-mm ball round will not penetrate a single sandbag. The 5.56-mm ball round will penetrate thin, lightweight concrete such as is sometimes used in light-clad framed buildings.

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FLAME WEAPONS - M2 FLAME- THROWER AND M202 FLASH.	I-17
MORTARS	I-19

**STRUCTURE PENETRATING CAPABILITIES
M16 (5.56-MM BALL) AGAINST TYPICAL URBAN TARGETS**

WALL AT A RANGE OF 25 METERS

TYPE	THICKNESS	LOOPHOLE DIAMETER	ROUNDS* REQUIRED
REINFORCED CONCRETE	8 IN (20 CM)	7 IN (17.5 CM)	250
TRIPLE BRICK	12 IN (30 CM)	7 IN (17.5 CM)	260
CONCRETE BLOCK WITH BRICK VENEER	12 IN (30 CM)	7 IN (17.5 CM)	130
*FIRED IN THREE- TO FIVE-ROUND BURSTS			

Employment. Although close combat is the predominant characteristic of urban engagements, many occasions will arise which require high standards of marksmanship. Riflemen must be able to hit small, fleeting targets in bunker apertures, windows, and loopholes. This requires pinpoint, long-range accuracy with weapons fired in the semiautomatic mode. Killing an enemy through an 8-inch (20-cm) loophole at a range of 200 meters is a challenging requirement, but one that will be common in urban combat.

When fighting inside buildings, short-range automatic fire should be used. To suppress defenders while entering a room, a series of three-round bursts should be fired at likely enemy positions. A series of three-round bursts is a more efficient use of ammunition than one long burst.

When targets reveal themselves in buildings, the most effective engagement is

the quick-fire technique described in chapter 8, FM 23-9. Accurate quick fire will not only kill enemy soldiers but will also gain instant fire superiority.

WARNING

THE M16 ROUND WILL PENE-
TRATE WOOD AND PLASTER.
MAKE SURE THAT NO FRIENDLY
TROOPS ARE ON THE OTHER
SIDE OF WOODEN OR PLASTER
WALLS.

At night, combat inside buildings is characterized by less light than in the open. Thus, the starlight scope can be used with limited effectiveness. The use of aiming stakes in the defense and the pointing technique in the offense, both using three-round bursts, are night firing skills required of all urban fighters.

M16/M203 DUAL PURPOSE WEAPON

The M16/M203 dual purpose weapon provides a means of engaging targets in defilade.

Effectiveness. The effectiveness of the M203 is a function of the rounds used.

M203 ROUNDS	
M651E1 TACTICAL CS ROUND	USED TO DRIVE THE ENEMY FROM BUNKERS, BUILDINGS, SUBWAYS, OR SEWERS USING A TACTICAL AGENT (CS). THE ROUND HAS SOME INCENDIARY CHARACTERISTICS AND SHOULD NOT BE USED AGAINST CIVILIANS. IT COULD ALSO BE A FIRE HAZARD WHEN USED IN BUILDINGS.
M583 WHITE STAR PARACHUTE	PROVIDES UP TO 40 SECONDS OF ILLUMINATION.
M433 HE DUAL PURPOSE ROUND	CAN BE USED AGAINST POSITIONS WITH OVERHEAD COVER OR ARMORED VEHICLES. THE ROUND WILL PENETRATE IN EXCESS OF 2 INCHES (5 CM) OF STEEL OR 6 TO 8 INCHES (15 TO 20 CM) OF BUILDING MATERIALS. THIS ROUND CAN ALSO BE USED AGAINST TARGETS IN THE OPEN, AND HAS A 5-METER CASUALTY RADIUS FOR ANTIPERSONNEL EFFECTS.
SIGNIFICANT CHARACTERISTICS OF THE 40-MM GRENADE LAUNCHER, M203, ARE RANGES AT WHICH A 0.5 PROBABILITY OF TARGET HIT CAN BE EXPECTED: AREA TARGET (FIRE TEAM SIZE) 350 METERS POINT TARGET WINDOW 125 METERS BUNKER APERTURE 50 METERS STATIONARY VEHICLES OR WEAPONS EMPLACEMENT 200 METERS MAXIMUM RANGE..... 400 METERS MINIMUM SAFE FIRING RANGES (HE AND TP) COMBAT 31 METERS MINIMUM ARMING RANGE 14 TO 28 METERS	

Employment. The grenade launcher is most effective when fired into windows and bunkers with minimum exposure to the grenadier. Since there is no backblast, the grenade launcher can be fired from inclosures without taking special precautions.

HAND GRENADES

Effectiveness. The variety of hand grenades affords a choice of effects in urban combat.

HAND GRENADES	
M67 FRAGMENTATION	USED CHIEFLY TO CLEAR ROOMS. IT IS THROWN THROUGH WINDOWS OR DOORS PRIOR TO ENTRY. USED WITH THE M213 TIME FUZE, THE GRENADE SHOULD BE "COOKED OFF" FOR 2 SECONDS TO DENY THE ENEMY TIME TO THROW IT BACK.
M34 WP SMOKE HAND GRENADE.	USED TO DESTROY FLAMMABLE OBJECTS, TO DRIVE THE ENEMY FROM WOODEN STRUCTURES, OR TO CREATE SMOKE SCREENS TO CONCEAL MOVEMENT.
WARNING THE M34 HAS A 35-METER BURSTING RADIUS. WP FRAGMENTS WILL CAUSE SERIOUS BURNS WITHIN THIS 35-METER AREA.	
ABC M7A3 CS RIOT CONTROL GRENADE.	USED TO DRIVE ENEMY TROOPS OUT OF FORTIFICATIONS WHEN CIVILIAN CASUALTIES OR COLLATERAL DAMAGE CONSTRAINTS ARE CONSIDERATIONS.
AN-M8HC WHITE SMOKE AND M18 COLORED SMOKE GRENADES.	USED FOR SIGNALING OR SCREENING.

Employment. Hand grenades in urban fighting serve two functions. The first is suppression in conjunction with room-to-room or house-to-house fighting. When used in this manner, the thrower should cook off

the grenade for 2 seconds, throw it through a window or door, and use the wall as cover. The second function is screening. Smoke grenades can screen short movements for a limited period of time, or can supplement the screening provided by mortar smoke, artillery smoke, or smokepots.

MACHINEGUNS—CALIBER .50 AND 7.62-MM

Effectiveness. Machineguns are designed to provide suppressive and destructive automatic fires.

STRUCTURE PENETRATING CAPABILITIES 7.62-MM (NATO BALL) AGAINST TYPICAL URBAN TARGETS			
WALL AT A RANGE OF 25 METERS.			
TYPE	THICKNESS	LOOPHOLE DIAMETER	ROUNDS* REQUIRED
REINFORCED CONCRETE	8 IN (20 CM)	7 IN (17.5 CM)	100
TRIPLE BRICK	12 IN (30 CM)	7 IN (17.5 CM)	200
CONCRETE BLOCK WITH BRICK VENEER	12 IN (30 CM)	6 IN (15 CM)	60
*FIRED IN THREE- TO FIVE-ROUND BURSTS.			

At 50 meters the 7.62-mm ball cartridge will not penetrate a single sandbag. The 7.62-mm round will penetrate wooden or plaster walls common to urban areas. It will also penetrate some of the outside walls of light-clad framed buildings.

STRUCTURE PENETRATING CAPABILITIES
CALIBER .50 BALL AGAINST TYPICAL URBAN TARGETS

WALL AT A RANGE OF 35 METERS

TYPE	THICKNESS	LOOPHOLE DIAMETER	ROUNDS REQUIRED	MOUSE- HOLE	ROUNDS* REQUIRED
REINFORCED CONCRETE	10 IN (25 CM)	12 IN (30 CM)	50	24 IN (60 CM)	100
TRIPLE BRICK	12 IN (30 CM)	8 IN (20 CM)	30	26 IN (65 CM)	143
CONCRETE BLOCK WITH BRICK VENEER	12 IN (30 CM)	10 IN (25 CM)	25	33 IN (82.5 CM)	46

(MOUSEHOLES ARE LARGE ENOUGH TO PERMIT ENTRY.)

*FIRED IN THREE- TO FIVE-ROUND BURSTS.

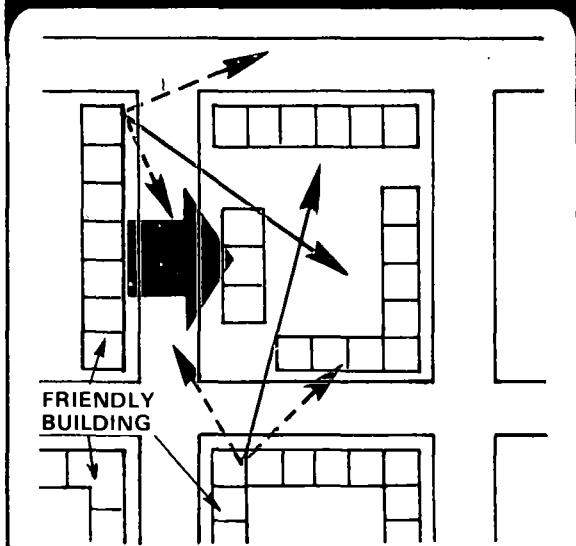
The caliber .50 machinegun is the most effective common weapon to penetrate walls, especially if the walls consist of the lightweight concrete commonly used in modern, light-clad framed buildings. It is also best to use against heavy-clad framed buildings and mass-construction buildings.

The caliber .50 machinegun fired from the tripod is also capable of accurate, long-range sniper fire.

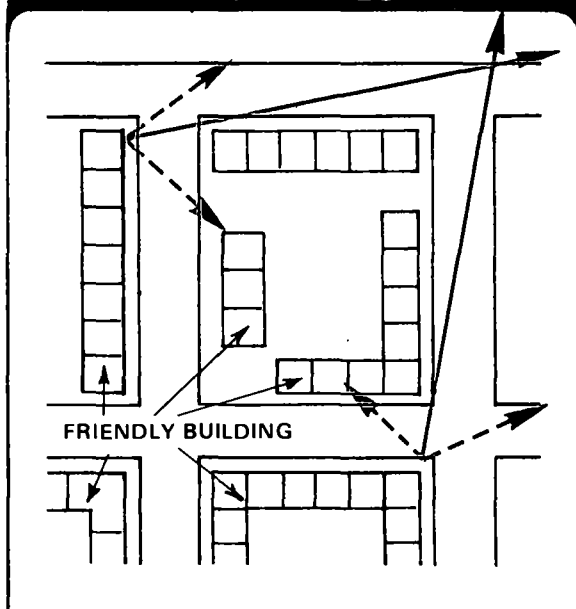
Employment. Machineguns in the offense are used to provide covering fire during the seizure of a foothold. Fires can also be shifted to isolate an area. The 7.62-mm machineguns can be fired from the hip or shoulder to

provide supporting fires during room-to-room combat. The best position is from the hip, with the over-shoulder long sling to support the weight of the weapons and ammunition.

SEIZING A FOOTHOLD



COVERING RESUPPLY AND ESCAPE ROUTES FROM BUILDINGS

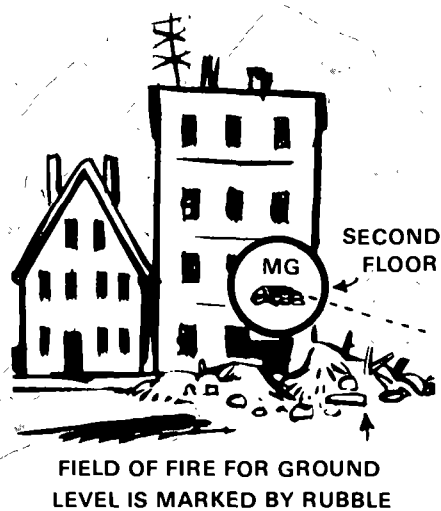


In the defense, machineguns will find their best fields of grazing fires along streets and alleys. Final protective lines should be planned to exploit the longest unobstructed fields of fire. Machineguns should be emplaced at the lowest level possible to attain grazing fire. If fields of fire are blocked by rubble, plunging fires may be attained at higher levels.

MACHINEGUN EMPLACEMENT



GROUND LEVEL IS MOST DESIRABLE



FIELD OF FIRE FOR GROUND LEVEL IS MARKED BY RUBBLE

ANTITANK WEAPONS—TOW, DRAGON, 90-MM RECOILLESS RIFLE, LAW

EFFECTIVENESS

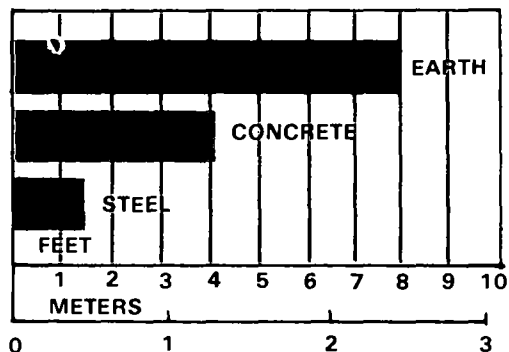
These weapons are primarily used to defeat tanks. Each has a limited capability against bunkers, buildings, and other urban or fortified targets.

The 90-mm RCLR fires an antipersonnel flechette round, effective against troops at ranges out to 300 meters.

TOW AND DRAGON PENETRATION

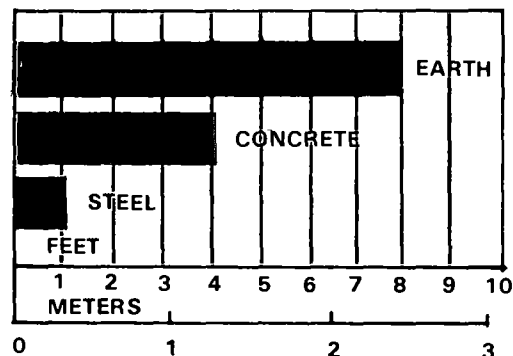
TOW PENETRATION

RANGE 65-3000 M



DRAGON PENETRATION

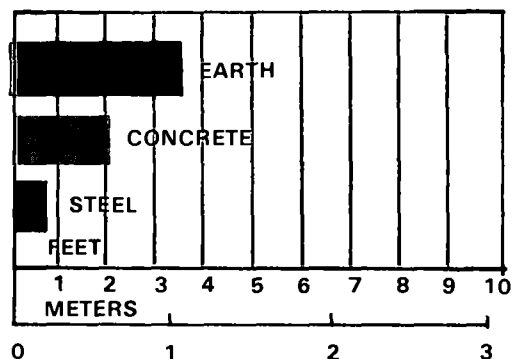
RANGE 65-1500 M



90-MM HEAT ROUND AND LAW PENETRATION

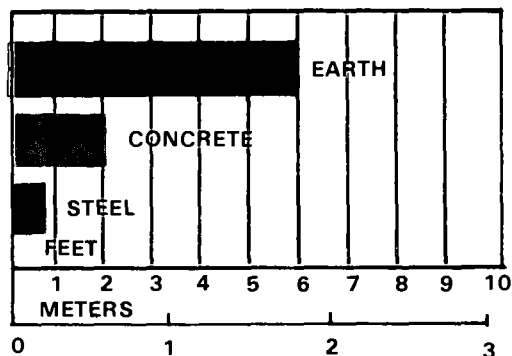
90-MM PENETRATION

RANGE 15-200 M



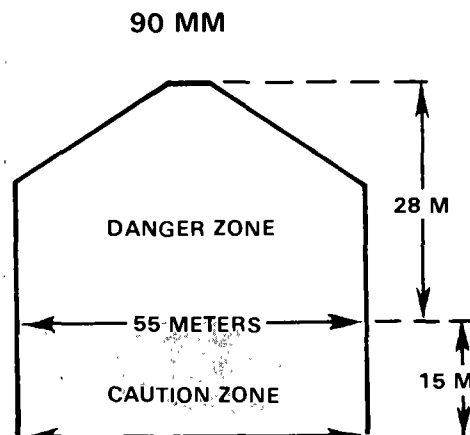
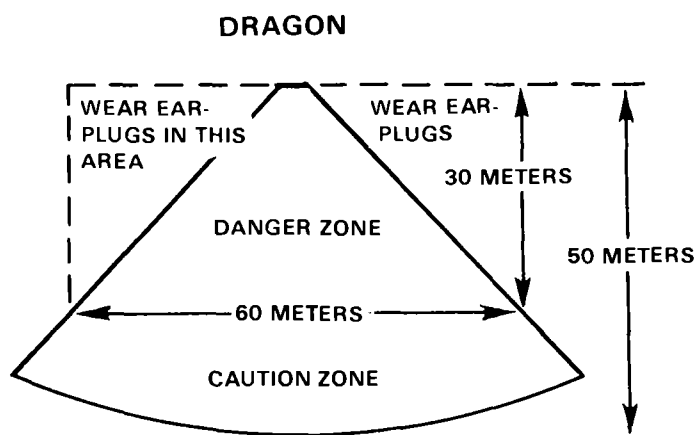
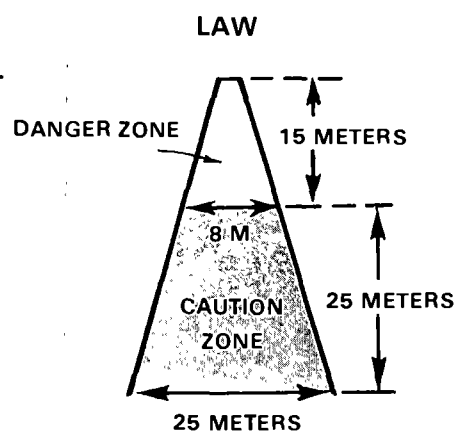
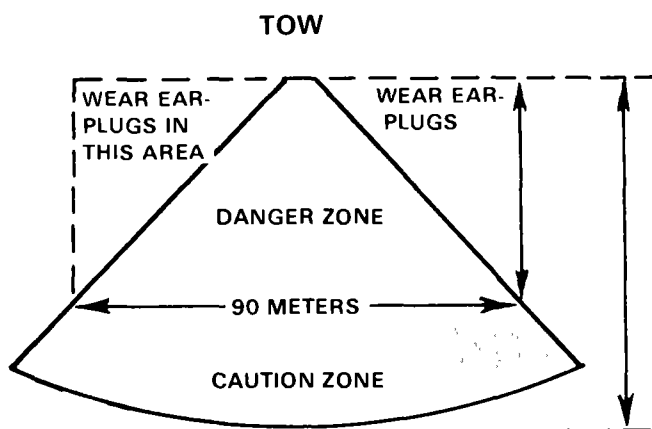
LAW PENETRATION

RANGE 15-400 M



Backblast characteristics must also be considered in employing antitank weapons.

BACKBLAST IN THE OPEN



BACKBLAST IN INCLOSURES

MINIMUM DIMENSIONS

WEAPON	ROOM SIZE	CEILING HEIGHT	VENT SIZE	MUZZLE CLEARANCE
TOW	17 x 24 FT	7 FT	20 SQ. FT.	9 IN
DRAGON/ 90-MM RCLR	15 x 12 FT	7 FT	20 SQ. FT.	6 IN
LAW	4 FT TO THE BACKWALL	7 FT	20 SQ. FT.	

In urban combat, the backblast area becomes more hazardous due to rubble and the channeling effect caused by narrow streets and alleys. **Therefore, friendly troops must:**

- Move out of the danger zone.
- Be behind protection.
- Wear helmets and flak vests if they cannot move out of the caution zone.
- Use earplugs.

None of the antitank weapons described here can be fired from an unvented or completely inclosed room.

FIRING THE TOW FROM INSIDE A BUILDING



CONDITIONS FOR FIRING A TOW FROM INSIDE A ROOM

THE BUILDING MUST BE OF STURDY CONSTRUCTION.

THE CEILING MUST BE AT LEAST 7 FEET HIGH.

THE FLOOR SIZE OF THE ROOM MUST BE AT LEAST 17 BY 24 FEET.

THERE MUST BE AT LEAST 20 SQUARE FEET OF ROOM VENTILATION TO THE REAR OF THE WEAPON. AN OPEN 7- BY 3-FOOT DOOR IS SUFFICIENT.

ALL GLASS MUST BE REMOVED FROM THE WINDOWS AND ALL SMALL LOOSE OBJECTS REMOVED FROM THE ROOM.

EVERYONE IN THE ROOM MUST BE FORWARD OF THE REAR OF THE TOW.

EVERYONE IN THE ROOM MUST WEAR EARPLUGS.

THERE MUST BE 9 INCHES (23 CM) OF CLEARANCE BETWEEN THE TUBE AND THE APERTURE IT IS FIRED FROM.

FIRING THE DRAGON FROM INSIDE A BUILDING



CONDITIONS FOR FIRING A DRAGON AND 90-MM RCLR (FROM INSIDE A ROOM)

THE BUILDING MUST BE OF STURDY CONSTRUCTION.

THE CEILING MUST BE AT LEAST 7 FEET HIGH.

FLOOR SIZE MUST BE AT LEAST 15 BY 12 FEET.

THERE MUST BE AT LEAST 20 SQUARE FEET OF VENTILATION (ROOM OPENINGS) TO THE REAR OF THE WEAPON. AN OPEN 7- BY 3-FOOT DOOR WOULD PROVIDE ADEQUATE VENTILATION.

ALL GLASS MUST BE REMOVED FROM WINDOWS AND SMALL, LOOSE OBJECTS REMOVED FROM THE ROOM.

THE FLOORS MUST BE WET TO PREVENT THE DUST AND DIRT FROM BLOWING AROUND.

ALL PERSONNEL IN THE ROOM MUST BE FORWARD OF THE REAR OF THE WEAPON.

EVERYONE IN THE ROOM MUST WEAR EARPLUGS.

THERE MUST BE AT LEAST 6 INCHES CLEARANCE BETWEEN THE TUBE AND THE APERTURE IT IS FIRED FROM.

FIRING THE LAW FROM INSIDE A BUILDING



CONDITIONS FOR FIRING A LAW FROM INSIDE A ROOM

THERE MUST BE AT LEAST 4 FEET OF CLEARANCE BETWEEN THE REAR OF THE LAW AND THE NEAREST WALL.

THERE MUST BE AT LEAST 20 SQUARE FEET OF VENTILATION.

ALL GLASS MUST BE REMOVED FROM THE WINDOWS.

ALL PERSONNEL IN THE ROOM MUST BE FORWARD OF THE REAR OF THE WEAPONS AND MUST WEAR EARPLUGS.

ALL COMBUSTIBLE MATERIAL SHOULD BE REMOVED FROM THE REAR OF THE WEAPON.

EMPLOYMENT

Antitank: TOWs and Dragons are best employed from upper stories to attain the longest fields of fire. When deciding whether to dismount his TOWs, the commander must consider the advantages of long-range fires versus the disadvantage of the loss of mobility. In many cases, the best technique will be to keep the TOWs out of the city altogether, employing them on terrain on the outskirts. The weapons' minimum firing

distance (*65 meters*) limits firing opportunities in cities.

Dragons, 90-mm RCLRs, and LAWs can attain effective short-range shots by firing from upper stories or from the flank. Those engagements are targeted against the more vulnerable parts of the tank, and catch the tank in situations where it cannot counter-fire.

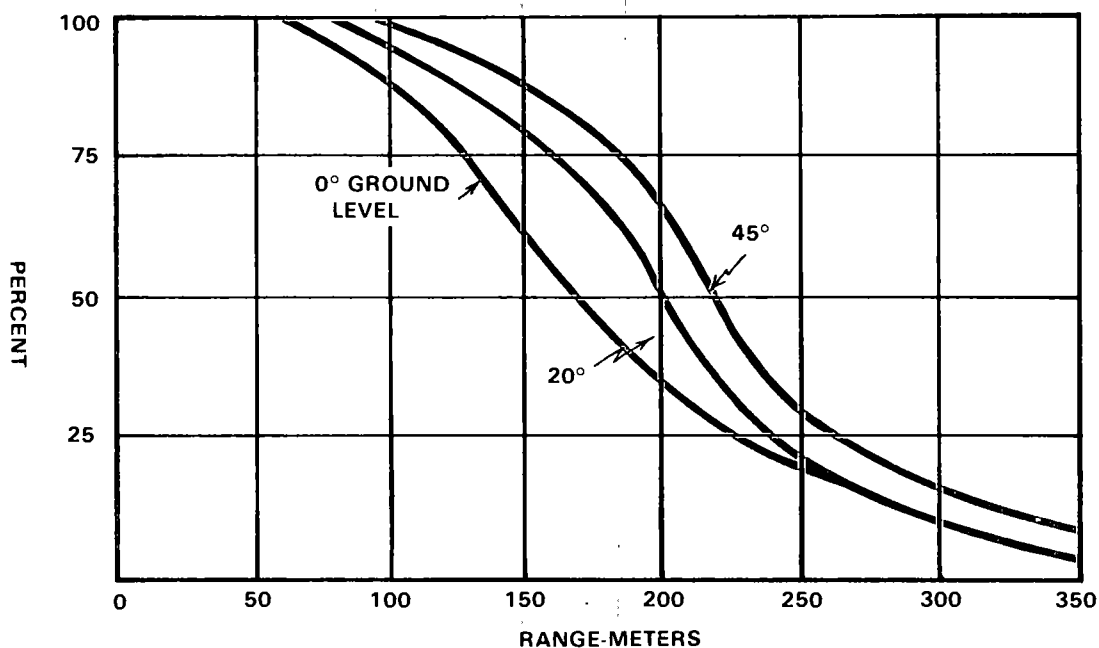
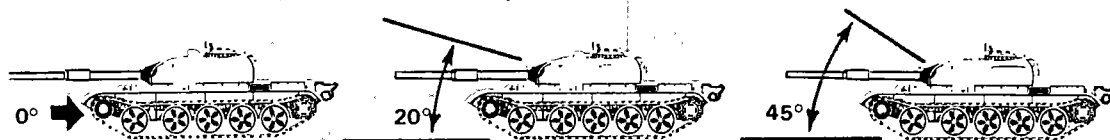
LAW ENGAGEMENT



A 45-degree angle doubles the probability of a first round hit when compared to a ground level shot.

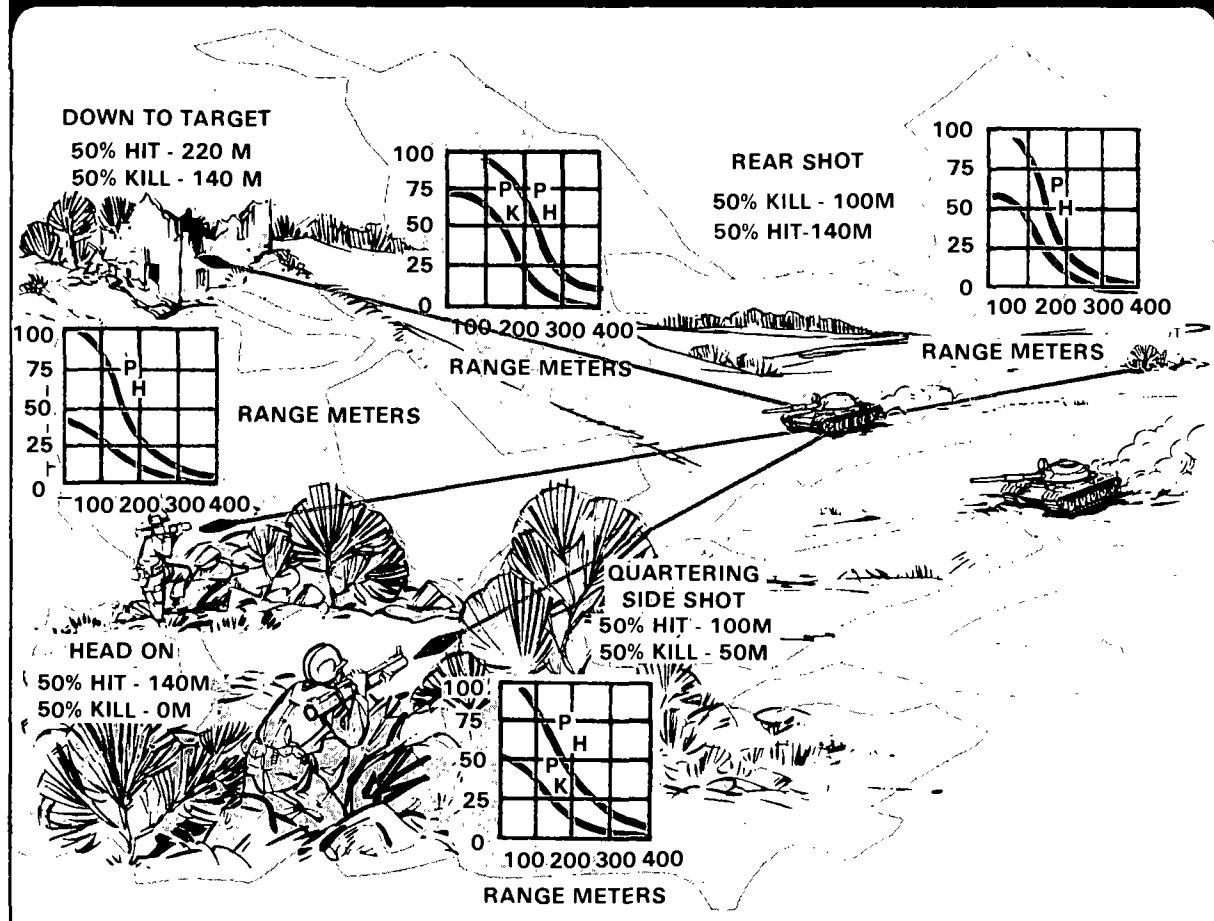
FIRING ELEVATION ANGLES

TARGET - TANK STATIONARY, EXPOSED ATTACK ANGLE - 30°



The next illustration displays first round hit and kill probabilities expected from an average well-trained gunner. For comparison, the range where a 50:50 probability is expected is indicated for different attack angles. First round kill capability, at 200 meters, is less than 50 percent in all cases. Even skilled gunners will normally require more than one round to kill a tank.

FIRST ROUND HIT/KILL PROBABILITIES



Against structures: The most important task to be performed against structures is the neutralization of fortified firing positions. Antitank weapons can be used in this role. None is as effective as the main gun of the M60 tank.

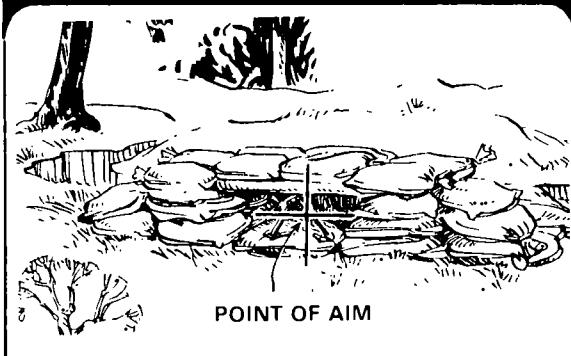
Firing ATGMs is the least efficient means to defeat structures. Because of their small basic load and high cost, ATGMs are better saved for use against tanks.

Current antiarmor rounds employ shaped-charge warheads. As a result, the hole those weapons punch in walls is too small to be used as a breach. As a general rule, shaped-charge warheads will not

neutralize targets behind walls unless the targets are located directly in line with the point of impact.

Against sandbagged emplacements, antitank weapons should be aimed at the center of the firing aperture.

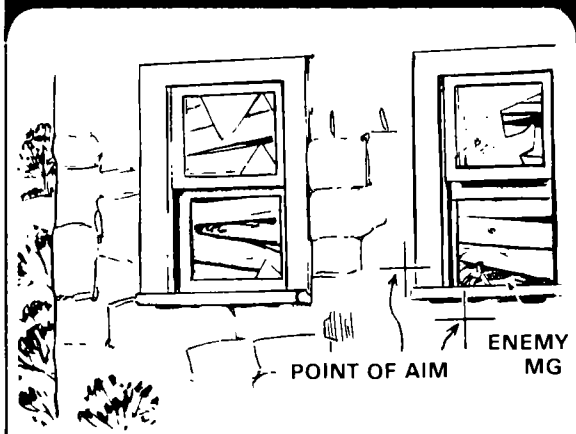
POINT OF AIM FOR SANDBAGGED EMPLACEMENT



Even if the round does not go through the aperture, the bunker walls are usually easiest to penetrate at the apertures.

Against structures, antitank weapons should be aimed about 6 inches below or to the side of a firing aperture. That will enhance the probability of killing soldiers behind the wall.

POINT OF AIM FOR A STRUCTURE



Wall breaching: None of the antitank weapons organic to the infantry battalion provide a one-shot capability of breaching an entry hole.

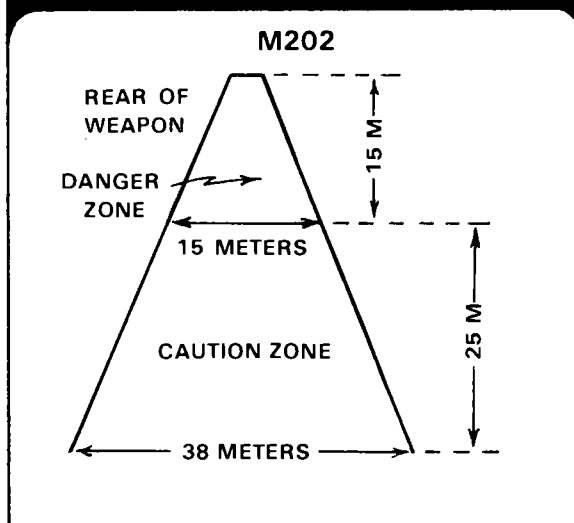
Wall breaching is much more efficiently accomplished by 105-mm high explosive antitank (HEAT) tank ammunition or by demolition.

FLAME WEAPONS— M2 FLAMETHROWER AND M202 FLASH

EFFECTIVENESS

Flame weapons are characterized by both a physical and a psychological casualty-producing capability. Flame need not be fired with pinpoint accuracy, and can be controlled in order to limit collateral damage. The M2 flamethrower has a short effective range (20 to 50 meters), but requires no special backblast preparation. The M202 flash can be used at greater ranges (20 to 200 meters for point targets and 20 to 500 meters for area targets), but has a backblast which must be considered.

BACKBLAST AREA FOR M202 FLASH



Ranges at which a 0.5 probability of target hit can be expected with the M202:

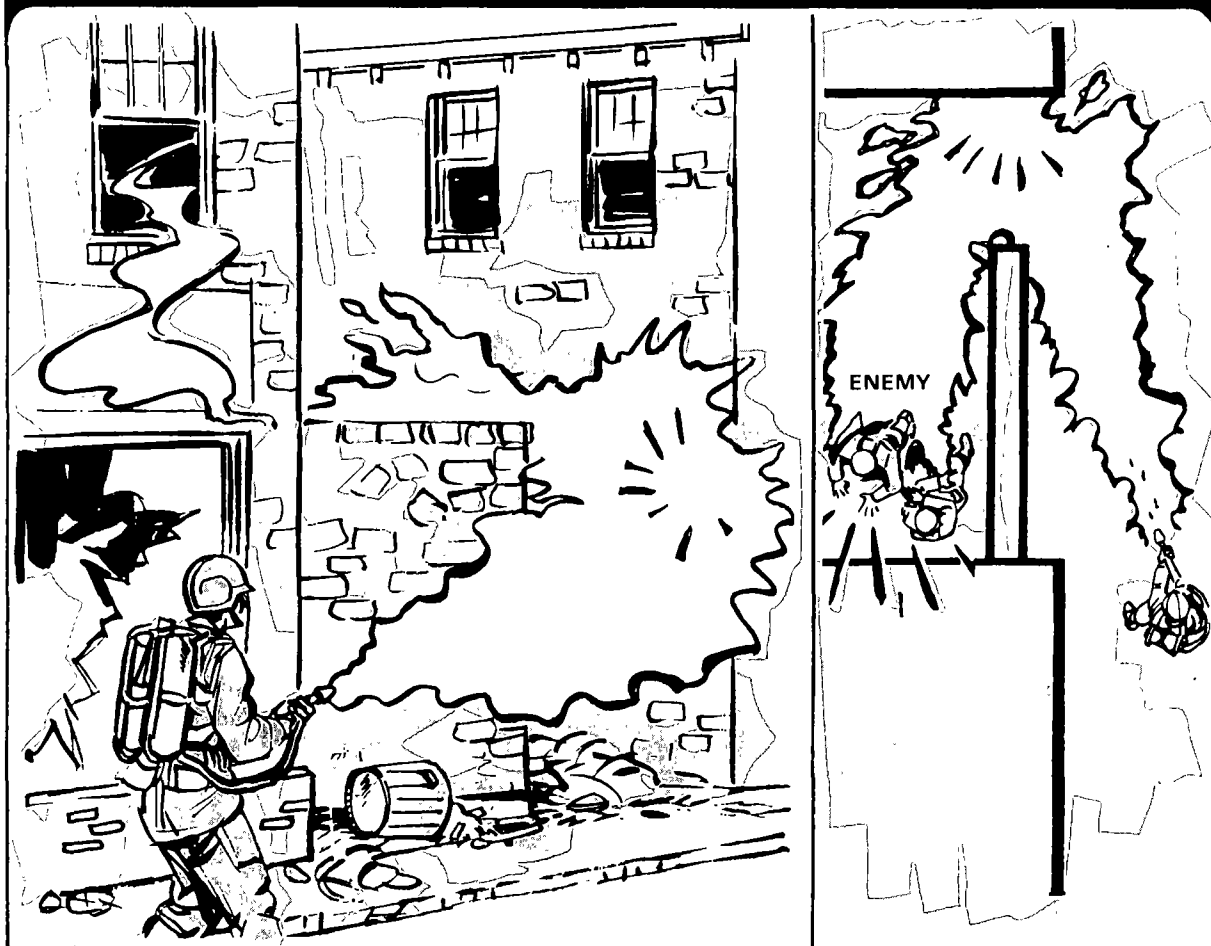
- Area target (fire team size)—500 meters
- Point target—200 meters stationary or uncovered position.
—50 meters bunker aperture.
- Minimum safe range—20 meters.

- Bursting radius rocket warhead—20 meters.

EMPLOYMENT

Flame weapons used against fortified positions should be aimed directly at the aperture. Even if the round or burst misses, enough of the flaming material will enter the position to cause casualties. Against troops behind a street barricade, the M2 flamethrower can be fired in a traversing burst to cover a wide frontage. Blind angle burst may be fired to exploit the splattering effect of the thickened fuel without exposing the gunner.

BLIND ANGLE BURSTS

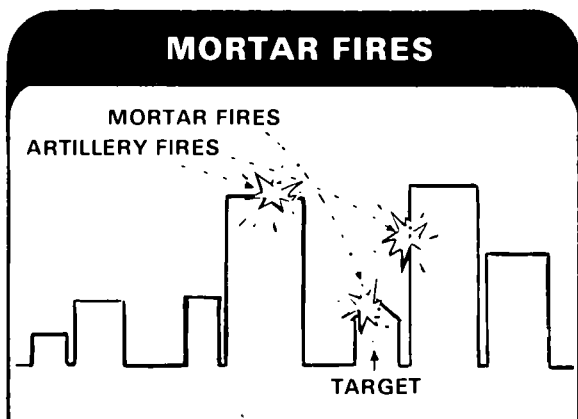


Bursts of fuel fired without ignition, or wetshots, can be fired with the M2 to be ignited with a subsequent shot to create an intense fireball. This technique is effective in destroying captured equipment or killing enemy soldiers in sewers. If the enemy has established a position in a wooden building, the building can be burned down. Flame is also effective when fired onto the back deck of tanks or at the vision blocks.

Thickened fuel is difficult to extinguish, and therefore a commander must ascertain what will burn before he employs flame. Limits imposed on collateral damage, either political or tactical, will be the most serious constraint to the use of flames. Commanders must also insure that soldiers using flame weapons are provided adequate security.

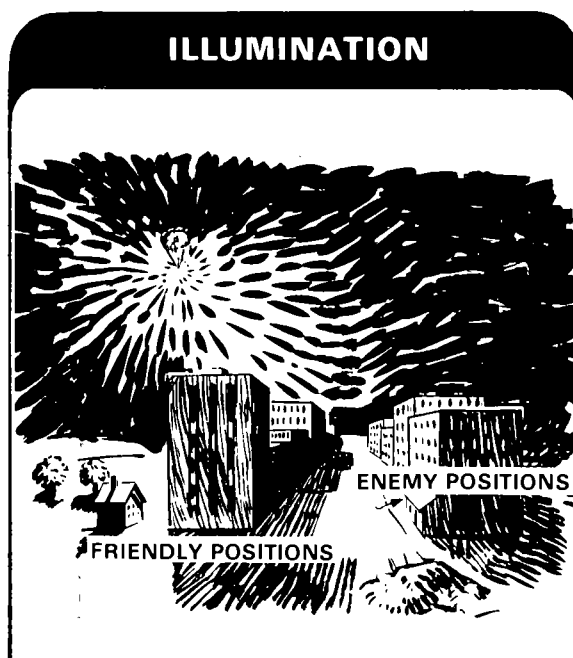
MORTARS

The urban environment restricts indirect fires due to the overhead masking of targets. While all indirect fire weapons are subject to overhead masking, mortars are less affected than field artillery weapons because of the higher trajectory of the mortar round.



Commanders must consider the effects of overhead masking and plan to use direct fire weapons to provide fire support more than usual.

Masking also impacts on the use of illumination. In cities, it will often be necessary to plan illumination behind friendly positions to put friendly troops in the shadows and enemy troops in the light.



If there is nothing but concrete in the mortar platoon's area, mortars can be fired using sandbags as a buffer under the baseplates and curbs as anchors and braces. Aiming posts can be placed in dirt-filled cans.

The minimum range of 900 meters for the 4.2-inch (107-mm) mortar will be the chief constraint in its employment.



APPENDIX J

Subterranean Route Reconnaissance**GENERAL**

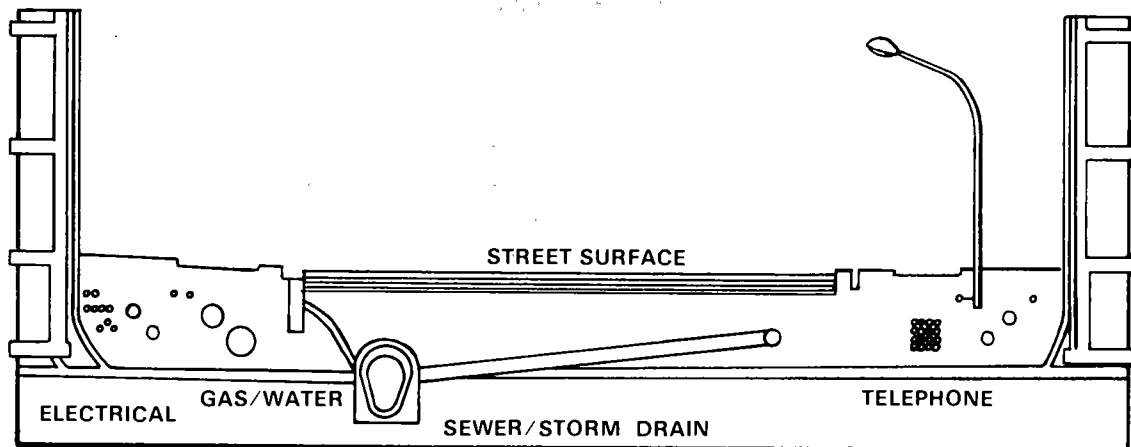
To a casual observer, a typical city consists of a maze of streets and buildings. Without too much experience, he could pick out which streets and which buildings afford the greatest military advantage. But unless he looks for it, he will normally ignore another dimension of the city, the subterranean features. In larger cities, subterranean features include sunken garages, underground passages, subway lines, utility tunnels, sewers, and storm drains. Many of those features will allow the movement of many troops. Even in smaller European towns, sewers and storm drains occasionally will permit troops to move beneath the fighting to surface behind the enemy.

Thus, a detailed knowledge of the nature and location of underground facilities is of potentially great value both to the urban attacker and the defender. This appendix describes the techniques used at platoon level to reconnoiter and secure an underground route. Typical of such features is a tunnel under the street, high and wide enough to permit passage of one man at a time. Such tunnels, commonly found in Europe, are used as sewers and storm drains. Larger facilities normally require some modification to the basic techniques described here, but the fundamentals remain the same.

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TUNNELS



ORGANIZATION

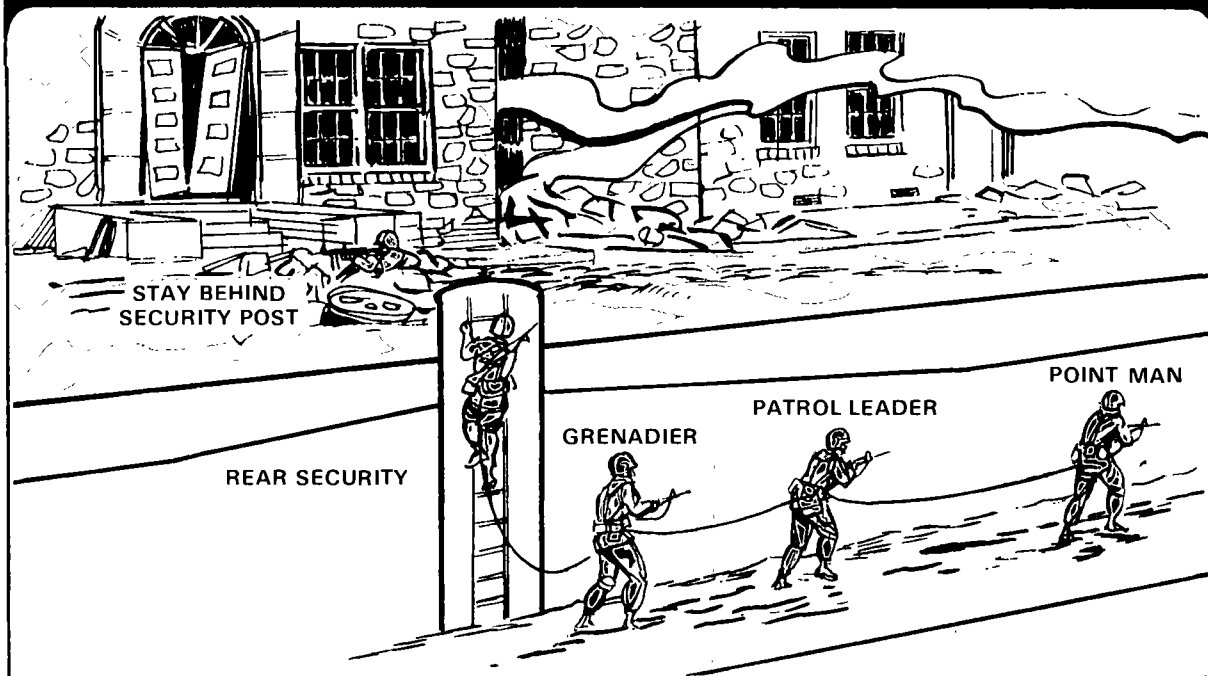
The local reconnaissance mission should be given to an element of fire team size. There are enough soldiers in a fire team to gather the required data, but not so many that they get in each other's way in the confines of the tunnel. Only in the case of extremely large subterranean features should the size of the patrol be increased.

The patrol leader should organize his patrol with one rifleman tasked with security to the front (*the point man*) and one rifleman tasked with security to the rear. The patrol leader will move directly behind the point man, and will navigate and record the data collected by the patrol. The grenadier should

follow the patrol leader. One rifleman should be left as a security post at the point of entry. He is responsible for detecting any enemy

coming up on the patrol's rear. That function may also be performed by other members of the platoon.

ORGANIZATION OF THE PATROL



EQUIPMENT

The patrol leader should carry a map, a compass, a street plan, and a notebook in which he has written those items of information he has been tasked by the platoon leader to gather. The grenadier should carry the tools necessary to open manhole covers. If the patrol is to move more than 200 to 300 meters, or if the platoon leader directs, the grenadier should also carry a sound-powered telephone (*TA-1*) and a wire dispenser (*XM-306A*) for communications. (*Radios will be unreliable in this environment.*) All soldiers should carry protective masks, flashlights, gloves, and chalk for marking features along the route. In addition, the patrol should be equipped with a 120-foot safety rope to which each man is tied. To improve their footing in

slippery sewers and storm drains, the members of the patrol should wrap chicken wire or screen wire around their boots.

A constant concern to troops conducting subterranean patrols is chemical defense. Enemy chemical agents used in tunnels will be encountered in dense concentrations, with no chance that a lucky wind will disperse them. The M8 automatic chemical agent alarm system, carried by the point man, will provide instant warning of the presence of chemical agents. At the first indication that harmful gases are present, the patrol should mask.

In addition to enemy chemical agents, noxious gases from decomposing sewage may also pose a threat. These gases will not

be detected by the M8 chemical agent alarm system, nor will they be completely filtered by the protective mask. Signs that indicate their presence in harmful quantities are nausea and dizziness. The patrol leader should be constantly alert to those signs and should know at all times the shortest route to the surface and fresh air.

ACTIONS OF THE PATROL

Once the patrol is organized and equipped, it then moves to the entrance of the tunnel, usually a manhole. With the manhole cover removed, the patrol waits 15 minutes prior to entry to allow any gases to dissipate. Then the point man goes down into the tunnel. He checks to determine whether the air is breathable and how much the narrowness of the tunnel restricts movement. The point man should remain in the tunnel for 10 minutes before the rest of the patrol follows. If he becomes ill or gets into trouble, he can be pulled out by the safety rope.

When the patrol is moving through the tunnel, the point man moves about 10 meters in front of the patrol leader. Other patrol members maintain 5-meter intervals. If the water in the tunnel is flowing faster than 2.5 meters per second, or if the sewer contains many slippery obstacles, those intervals should be increased somewhat, so that if one man slips it will not upset the others. All patrol members should stay tied into the safety rope so that they can easily be retrieved from danger. The rear security man marks the route with chalk so that, if necessary, other troops can find the patrol. As mentioned, a security post is maintained at the point of entry.

The patrol leader should note the azimuth and pace count of each turn he takes in the tunnel. When he encounters a manhole to the surface, the point man should open it and determine the location, which the patrol leader then records. The use of recognition signals will keep friendly troops from accidentally shooting the point man as he appears at these manholes.

RECOGNITION SIGNALS



Once the patrol has returned and made its report, the platoon leader must decide what to do about the tunnel. In the offense, he may use it to provide a covered route to move behind the enemy's defenses. In the defense, the tunnel may provide a covered passage between positions. In either case, the patrol members should act as guides along the route.

If the tunnel is to be blocked, the platoon should emplace concertina wire, early warning devices, and antipersonnel mines. A two-man position established at the entrance of the sewer will provide security against any

enemy trying to approach the platoon's defense. The position should be prepared on a platform built as high as possible so that it will not have to be abandoned when the water rises. It should be equipped with command-detonated illumination. While listening for the enemy, the soldiers manning this position should not wear earplugs, but before using their weapons they should put their earplugs in their ears. The confined space will amplify the sounds of weapons firing to a dangerous level. As was the case with the reconnaissance patrol, soldiers in this position should mask at the first sign of a chemical threat.

TWO-MAN POSITION ESTABLISHED AT THE ENTRANCE





APPENDIX K

Legal Aspects of Urban Combat**GENERAL**

Commanders must be well educated in the legal aspects of urban combat that include the control of large groups of civilians, the protection of key facilities, and civil affairs (CA) operations.

THE IMPACT OF CIVILIANS

The presence of large concentrations of civilians can greatly impede tactical operations. Civilians attempting to escape from the battle area may have the following impact on military operations.

MOBILITY

Fleeing civilians, attempting to escape over roads, can block military movement. Commanders should plan routes to be used by civilians and should seek the assistance of the civil police in traffic control.

FIREPOWER

The presence of civilians can restrict the use of fires and reduce the firepower available to a commander. Selected areas may be designated "no fire" areas to prevent

civilian casualties. Other areas may be limited to small arms and grenades, with prohibitions on air strikes, artillery, mortars, and flame. Target acquisition and the direction of fire missions will be complicated by the requirement for positive target identification. Detailed guidance on the use of firepower in the presence of civilians will be published by the division G3. In lack of any guidance, the general rules of the law of the land warfare apply.

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SECURITY

Security should be increased to preclude:

- Civilians being used as cover by enemy forces or agents.
- Civilians wandering around defensive areas.
- Pilferage of equipment.
- Sabotage.

OBSTACLE EMPLOYMENT

The presence of local civilians and movement of refugees will influence the location and type of obstacles that may be employed. Minefields may not be allowed on designated refugee routes or, if allowed, must be guarded until the passage of refugees is completed. Boobytraps and flame obstacles cannot be emplaced until the civilians are evacuated.

COMMAND AUTHORITY OVER INDIGENOUS CIVILIANS

The limits of authority of commanders at all levels over civilian government officials and the civilian populace must be established and well understood. A commander must have that degree of authority necessary to accomplish his mission. However, the host government's responsibility for its populace and territory can affect the commander's authority in civil-military matters. In less secure areas, where the host government may be only partially effective, the commander may be called upon to assume greater responsibility for the safety and well-being of the civilian populace.

RESOURCE UTILIZATION

Operations in highly populated areas will require the diversion of men, time,

equipment, and supplies to accomplish humanitarian tasks. If host government agencies collapse, the drain on military resources could become substantial.

HEALTH AND WELFARE

The disruption of civilian health and sanitary services will sharply increase the risk of disease among both civilian and military personnel.

LAW AND ORDER

The host government may not be able to control mobs. US forces may have to augment civilian forces to protect life and property and to restore order. US forces may also have to secure vital government facilities for the host nation.

CIVIL AFFAIRS UNITS

If a civil government is not functioning effectively in an urban area, commanders may be temporarily responsible for administering essential civil activities until the civil government is reestablished or such responsibility can be given to governmental support units, under staff supervision of the division G5. Such activities are normally performed by those civil affairs elements attached to combat support or combat service support units. Where friendly and effective local government organizations exist, they are used to assist in civil affairs activities. (See FM 41-5 and FM 41-10 for further discussion.)

PROVOST MARSHAL

The provost marshal recommends measures required to control civilians and directs military police activities in support of refugee control operations. The provost marshal coordinates his activities with the

staff sections and supporting units in the area. Other military police responsibilities in regard to civil affairs and civilian control are contained in FM 19-1.

AN INFANTRY COMMANDER'S LEGAL AUTHORITY AND RESPONSIBILITIES

In general, commanders and leaders at all levels are responsible for protecting civilians and their property to the maximum extent allowed by military operations. Looting, vandalism, and brutal treatment of civilians are strictly prohibited, and individuals who commit such acts should be severely punished. Civilians, and their religions and customs, must be treated with respect. Women must be especially protected against any form of abuse.

In urban fighting, however, there are situations that are not quite so clear-cut as the above rules would imply. The remainder of this appendix will cover those civilian-military confrontations most common in urban areas and discuss how an infantry commander might deal with them in order to legally accomplish his mission.

CONTROL MEASURES

Curfew. Commanders may take whatever control measures are necessary to conduct operations, maintain security, or insure the safety and well-being of the civilians themselves. For example, a commander with the mission of defending a town may establish a curfew in order to maintain security or to aid in control of military traffic. Such a curfew would not be legal, however, if it were imposed strictly as a form of punishment.

Evacuation. A commander can require civilians to evacuate towns or buildings if the purpose of the evacuation is to use the town or building for military purposes, to enhance security, or to safeguard those civilians being evacuated. If a commander takes this action, he must specify and safeguard the evacuation route. At the destination, food, clothes, and sanitary facilities should be provided until the evacuees can care for themselves.

Forced labor. The commander may force civilians over 18 years of age to work if the work does not oblige them to take part in military operations. Permitted jobs include maintenance of public utilities as long as those utilities are not used in the general conduct of the war. It can also include services to local population, such as care of the wounded and burial. Civilians can also be forced to help evacuate and care for military wounded, as long as doing so does not put them into any physical danger. Prohibited jobs include digging entrenchments, constructing fortifications, transporting supplies or ammunition, or acting as guards. Volunteer civilians can be employed in such work.

CIVILIAN RESISTANCE GROUPS

Another situation that commanders might encounter is combat with a civilian resistance group. In order for those individuals to be afforded the status of legal combatants, they must be led by an individual responsible for the actions of the group, wear a fixed, distinctive insignia which can be seen at a distance, carry their weapons openly, and operate according to the rules and customs of warfare. Other civilians who provide assistance to such groups may or may not be entitled to status

as combatants, depending upon whether they are actually members of the resistance group. They are normally best treated as combatants until higher authority determines their status.

Armed civilian groups which do not meet the criteria of a legal resistance, or individuals caught in the act of sabotage, terrorism, or espionage, are not legal combatants. If captured, they must be considered criminals under the provisions of the law of land warfare. They should be detained in a facility separate from prisoners of war (PW), and should be turned over as rapidly as possible to the military police. In any case, reprisals, mass punishments, taking hostages, corporal punishment, pillage, or destruction of private property are prohibited punishments.

The law of land warfare lets a commander control the civil population under the conditions already described using his own resources. However, language and cultural differences between US and foreign personnel make it good practice to use native authorities, such as the police, for such purposes. Use of the police in no way relieves a commander of his responsibility to safeguard civilians in his area.

PROTECTION OF PROPERTY

Like civilian personnel, civilian buildings and towns normally have a protected status; i.e., they are not legal targets. Buildings and towns lose their protected status if it can be determined that the enemy is using them for military purposes. If doubt exists as to whether a town or building is defended, that doubt should be settled by reconnaissance, not by fire.

If it can be established that the enemy is using a building or a portion of the town for military purposes—for example, as a supply

point or a strongpoint—that building or that portion of the town is a legal target. Before engaging the target, the commander must decide if the bombardment of the target is necessary. Only such destruction as is required for military purposes is justified.

As a rule religious, historical, and cultural objects and buildings are not legal targets. They are sometimes marked with symbols marking them as cultural objects.

Medical facilities are protected under the internationally recognized Red Cross, Red Crescent, Red Lion, or Red Star of David symbols.

The fact that such symbols are absent does not relieve a commander of his responsibility to protect objects he recognizes as having religious, cultural, medical, or historical value.

The use of such objects by the enemy is grounds to disregard their protected status. Whenever possible, a demand should be made for the enemy to stop his misuse of the protected object within a reasonable time. If an enemy forward observer were using a church for an OP, for example, a commander would be justified in destroying it immediately, because a delay would allow the enemy to continue the misuse of the church. If a religious shrine were being used as a telephone switchboard, a warning would be appropriate, since it would take some time to dismantle the wires. In any case, once the decision to call fires on those objects is reached, destruction should be limited to the least necessary to neutralize the enemy installations.

The destruction, demolition, or military use of other buildings is permitted under the law of land warfare, if required by clear military necessity. Thus, destroying a house to obtain a better field of fire would be a legal act. Destroying it as a reprisal would not be.

Likewise, firing on houses which are occupied or defended by an enemy force is legal.

CIVILIAN CASUALTIES

If civilians are wounded in a commander's area, that commander is

responsible for providing them aid and protection to the maximum degree possible without disrupting military operations. A commander is not allowed to confiscate civilian medical supplies unless he makes provisions to provide adequate replacements if civilians are wounded.



APPENDIX L

The Bradley Infantry Fighting Vehicle, M2, in Urban Combat

GENERAL

Bradley infantry fighting vehicle platoons and squads will seldom fight alone in urban combat. They will normally fight as part of their company or in a company team.

EMPLOYMENT OF THE M2

Streets and alleys are ready-made firing lanes and killing zones. All vehicular traffic is greatly restricted, canalized, and subject to ambush and short-range attack. Tanks are at a disadvantage because their main guns cannot be elevated sufficiently to engage targets on upper floors of tall buildings. The M2, with +60 to -10 degrees elevation of the 25-mm cannon and 7.62-mm coax machinegun, has a much greater capability in this role. With firing port weapons, the M2 can also place suppressive fire at ground level to the flanks and rear simultaneously. A tank is restricted in its ability to provide this support.

Fighting in urban terrain will be centered around prepared positions in houses and buildings. Such positions cover street

approaches and will be protected by mines, obstacles, and boobytraps. Hence, bridges, overpasses, and buildings must be inspected and cleared of mines before they are used. Also, reconnaissance parties must ascertain the weight-supporting capacity of roads, bridges, and floors to determine if they will support the weight of M2s and tanks.

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M2s and tanks are not employed alone. Working as a team, dismounted infantrymen (*the close combat team*) provide security for M2s and tanks. In turn, the M2s and tanks provide critical fire support for the close combat team. When moving, M2s should keep close to the building on either side of the street. This will allow each M2 to cover the opposite side of the street. M2s may button up for protection, but M2 team members must remain alert for signals from dismounted infantry. The close cooperation between the close combat team and the fighting vehicle team in the urban environment is critical. Visual signals should be developed, telephones used where possible, and rehearsals and training conducted.

Commanders should consider using the long-range fires of the tank's main armament from overwatch positions. The M2, with its greater capability to depress and

elevate the 25-mm cannon, can provide some of the support previously derived from tanks within the built-up area.

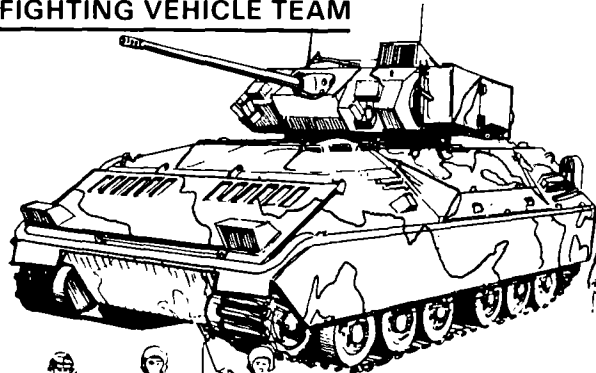
Because the M2 lacks adequate armor protection and is restricted in close-in fighting, it will normally be employed on terrain dominating the city to provide long-range antiarmor support. A great portion of the platoon's short-range antiarmor fires in urban areas will be provided by LAWs and Dragons. The M2s 25-mm cannon and TOW will be used where possible.

OFFENSE

Because of the nature of urban terrain, fighting in built-up areas, is for the most part, conducted by dismounted troops. M2s are employed to the extent possible in close support of dismounted teams. Tanks follow and are brought up, as required, to locations secured by leading infantry to provide heavy direct fire support.

M2 ORGANIZATION

FIGHTING VEHICLE TEAM



SL OR ASST SL GUNNER DRIVER

CLOSE COMBAT TEAM



SL OR ASST SL MG ANTIARMOR SPECIALIST AR AR R

MISSIONS

The missions of the close combat team engaged in the attack of a built-up area include:

- Assaulting and reducing enemy positions and clearing buildings under the covering fires of tanks and M2s.
- Neutralizing and destroying enemy antiarmor weapons.
- Locating targets for engagement by tank or M2 weapons.
- Protecting tanks and M2s against enemy individual antiarmor measures and surprise.

- Securing and defending an area once cleared.

Typical M2 team missions during attacks in urban areas are:

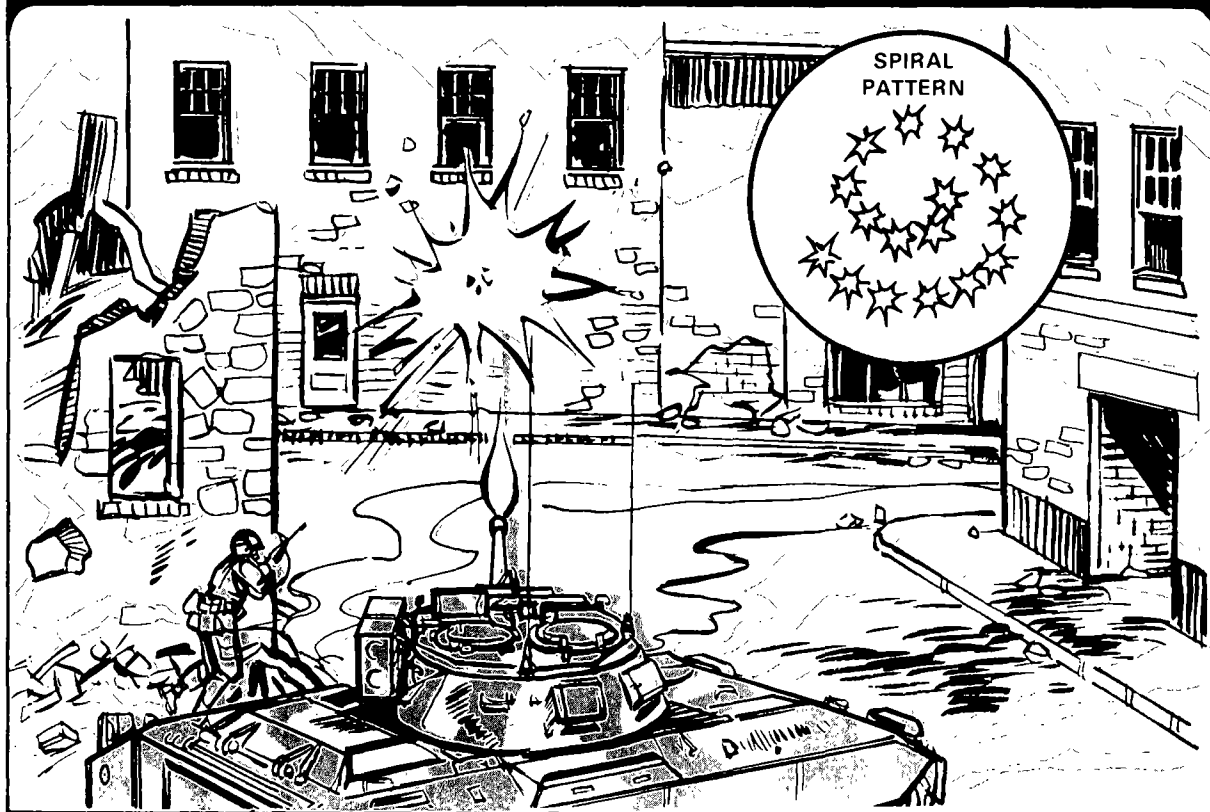
- Destroying enemy positions within a building with the direct fire of the 25-mm cannon (*using [APDS] ammunition*) and the 7.62-mm coax machinegun (*when the wall is constructed of light material*).
- Suppressing enemy gunners within the objective building and adjacent structures. This is accomplished with the 25-mm cannon and 7.62-mm coax machinegun.

SUPPRESSION BY FIRE



- Isolating the objective building with direct fire to prevent enemy withdrawal, reinforcement, or counterattack.
- Breaching walls en route to and in the objective structure. This is best accomplished with the 25-mm cannon, using a spiral firing pattern.

SPIRAL FIRING PATTERN



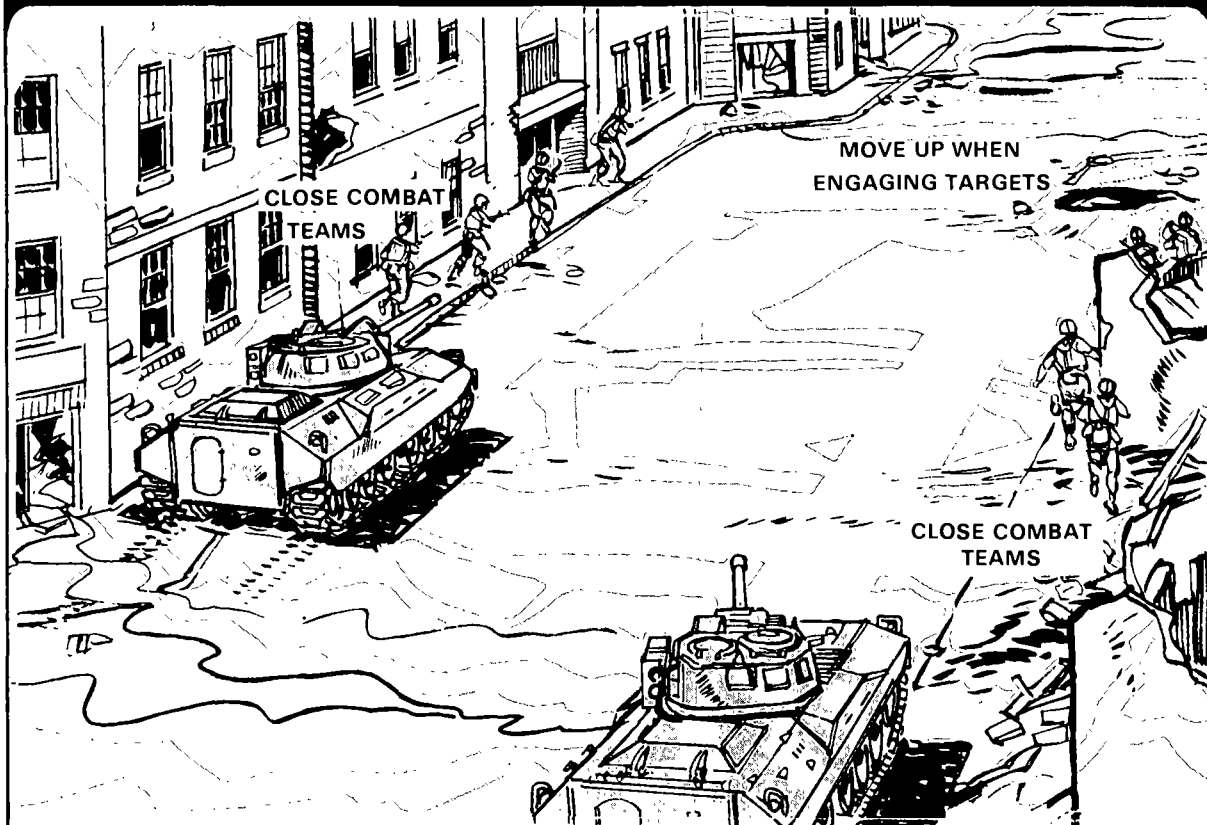
- Establishing a roadblock or barricade.
- Securing cleared portions of the objective.
- Obscuring the enemy's observation using the M2s smoke screen generator.

- Providing replacements for the assault force from other squad close combat team members.
- Providing resupply of ammunition and explosives for the assault force.
- Evacuating casualties from the areas of the direct fire.

M2 EMPLOYMENT CONSIDERATIONS

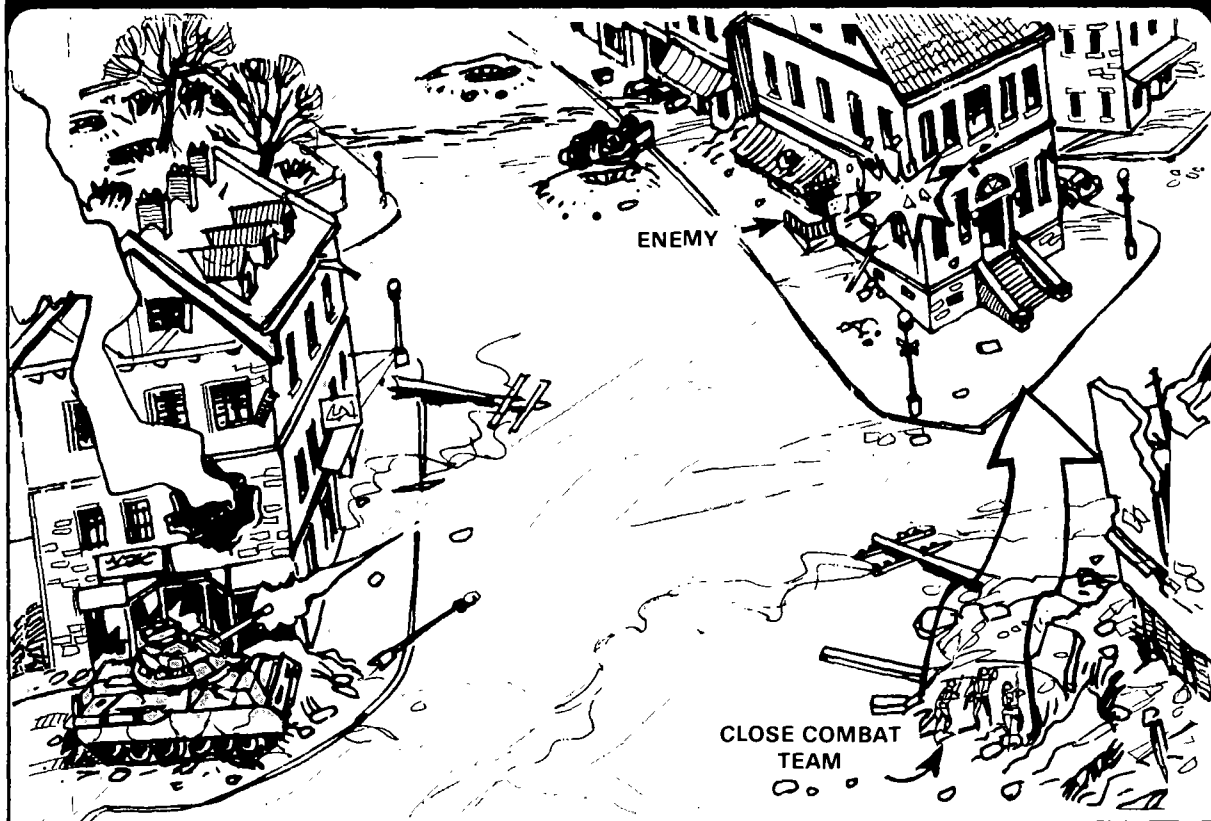
In the offense, the M2 is best used to provide direct fire support to the close combat team. The fighting vehicle team should move behind the close combat team and move up when required to engage targets located by the close combat teams.

COVER FOR CLOSE COMBAT TEAMS



The fighting vehicle teams provide fire for the close combat teams on the opposite side of the street with their 25-mm cannon and 7.62-mm coax machinegun. The 25-mm cannon is the most effective weapon on the M2s while fighting on urban terrain.

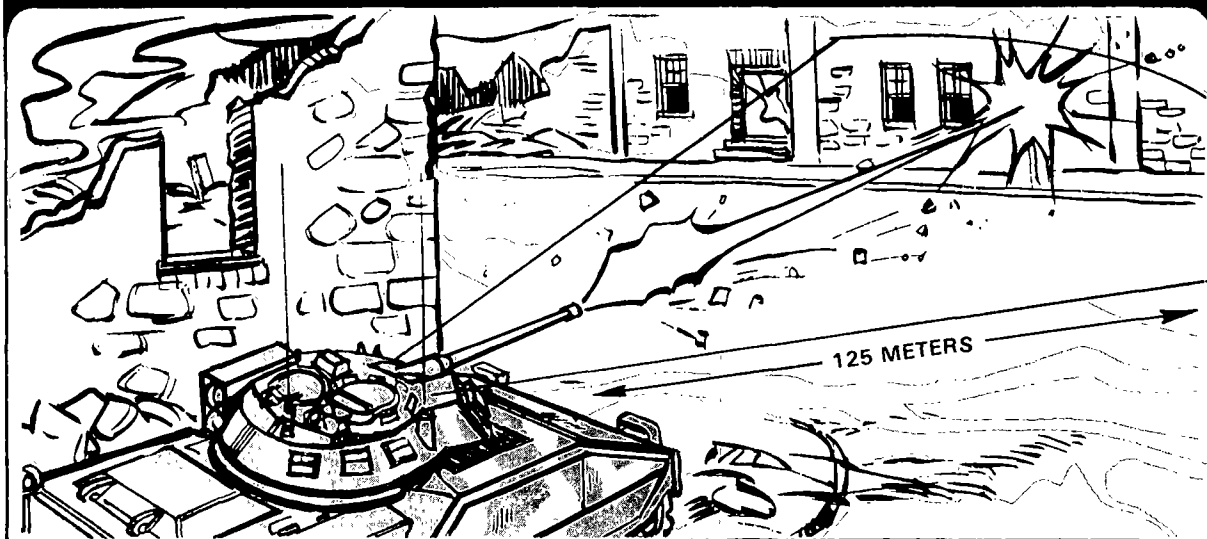
25-MM CANNON SUPPORT FOR CLOSE COMBAT TEAMS



The use of the 25-mm cannon in support of close combat teams requires some safety considerations. They are:

- High explosive 25-mm rounds arm 10 meters from the cannon and explode on contact.
- APDS rounds discard their plastic sabots to the front of the cannon when fired. (*This requires a 125-meter safety fan to the front of 25-mm cannon*).

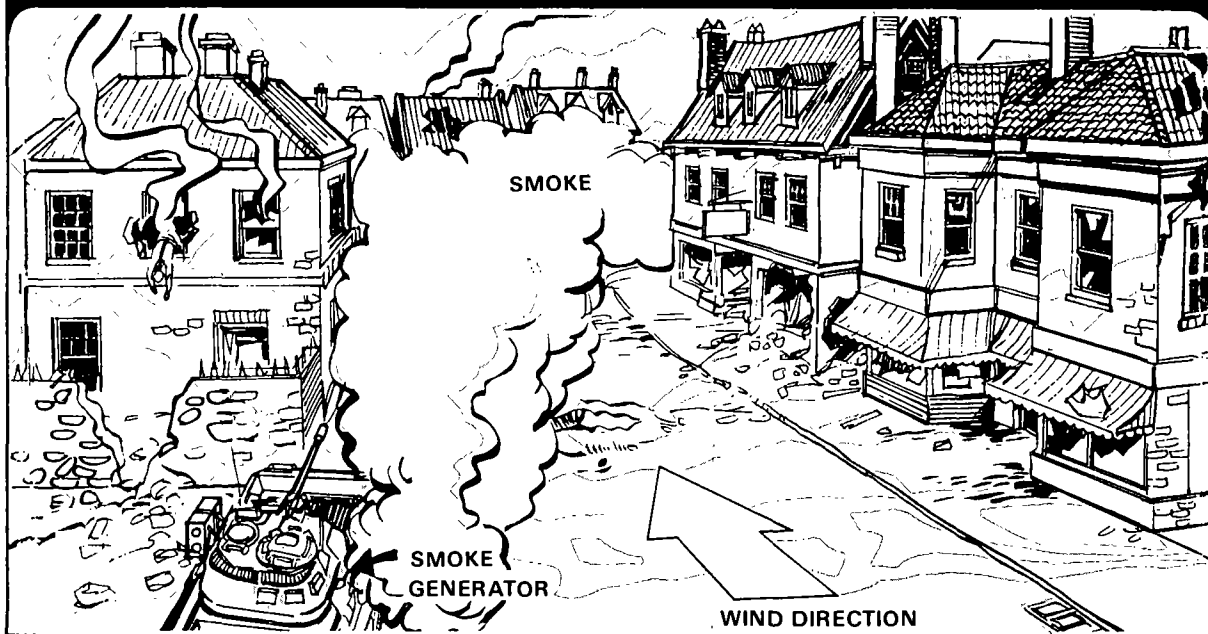
SAFETY FAN FOR 25-MM CANNON



The M2s smoke screen generator can be used in the urban environment to cover the movement of the close combat team. That requires careful analysis of wind conditions to insure the smoke affects the enemy more

than friendly units. That may be a difficult task because wind currents can be tricky between buildings. The smoke may also screen the movements of the M2s once the close combat teams cross the danger area.

SMOKE SCREENS MOVEMENT OF CLOSE COMBAT TEAM



Communications between the close combat element and the fighting vehicle team are critical. Communications can be visual or voice signals, radio, or telephone using the phone jack on the rear of the M2s.

The dash speed (*acceleration*) of the M2 enables the fighting vehicle team to rapidly cross streets, open areas, or alleys.

HOW TO ATTACK AND CLEAR A BUILDING

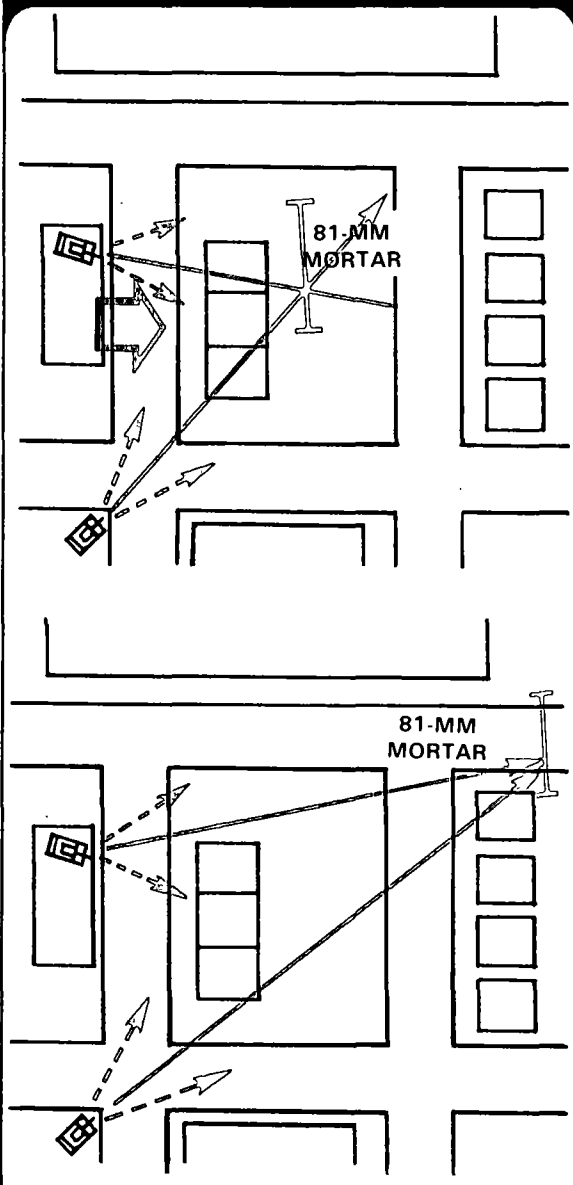
The most common mission of the platoon in offensive operations is to attack and clear a building or a group of buildings. The platoon leader first designates the composition of the close combat teams and the fighting vehicle teams. The makeup of those teams changes with the situation. Normally, the fighting vehicle teams and the men needed for security make up the fighting vehicle element. Each squad close combat team is organized into two- or three-man assault parties. The platoon leader may designate a part of the platoon as a demolitions team.

The entire platoon close combat element is normally used to attack one building at a time. (*In smaller buildings, the platoon leader may have a single close combat team conduct the attack.*) **An attack is conducted in three steps:**

- ① The fighting vehicle element, supported by indirect and direct fire, isolates the building.
- ② The close combat element enters the building to seize a foothold.
- ③ The close combat element clears the building room by room.

To isolate the building, the fighting vehicle element takes an overwatch position. It fires the 25-mm cannon and 7.62-mm coax machinegun and adjusts indirect fire to suppress enemy troops in the building and those in nearby buildings who can fire at the dismounted element.

ISOLATION OF A BUILDING AND SHIFTING OF FIRES



The close combat teams move to the building on covered and concealed routes. Smoke grenades, smoke pots, and the smoke screen generator of the M2 can provide additional concealment. The close combat teams enter the building at the highest point they can, **because:**

- **The ground floor and basement are usually the enemy's strongest defenses.**
- **The roof of a building is normally weaker than the walls.**
- **It is easier to fight down stairs than up stairs.**

If there is no covered route to the roof, the close combat teams may encounter enemy at a lower story or at ground level. In this case, they should seize a foothold quickly, fight to the highest story, and then clear room by room, floor by floor, from the top down.

DEFENSE

As in the attack most of the fighting in the defense is done by the close combat teams. It is more difficult to build the platoon's defense around the M2 in cities than in other types of terrain, but the vehicle element's role is still important. A platoon normally defends from positions in one to three buildings. This depends on the size and strength of the buildings, the size of the platoon, and on the disposition of the buildings.

MISSIONS

Typical missions of close combat teams in the defense include:

- **Preparing defensive positions.**

- **Providing observation and security to prevent enemy infiltration.**
- **Engaging and defeating assaulting enemy forces.**
- **Acquiring targets for engagement by tanks and M2 weapons.**
- **Protecting tanks and M2s from close-in antiarmor weapons.**
- **Emplacing demolitions and obstacles (*supported by combat engineers*).**

Typical missions of fighting vehicle teams in the defense include:

- **Providing fire support for the close combat teams and mutual support to other fighting vehicle teams.**
- **Destroying enemy armored vehicles and direct fire artillery pieces.**
- **Neutralizing or suppressing enemy positions with 25-mm cannon and 7.62-mm coax machinegun fire in support of local counterattacks.**
- **Destroying or making enemy footholds untenable by fire with the use of the 25-mm cannon.**
- **Providing rapid, protected transport to the close combat teams, as required.**

- **Reinforcing threatened areas by movement through covered and concealed routes to new firing positions.**
- **Providing mutual support to other antiarmor fires.**
- **Covering obstacles by fire.**
- **Providing smoke screens, using the M2 smoke generator, to cover friendly movements.**
- **Providing resupply of ammunition and other supplies to the dismount teams.***
- **Evacuating casualties from the area of direct fire.***

**In these two cases, the overall value of the M2 to the defense must be weighed against the need to resupply or to evacuate casualties.*

EMPLOYMENT CONSIDERATIONS

The platoon leader must consider the following **when developing his defense**:

Dispersion. It is better to have positions in two mutually supporting buildings than in one building which can be bypassed.

Concealment. City buildings provide excellent concealment. Obvious positions, especially at the edge of an urban area, should be avoided because they are the most likely to receive the heaviest enemy fire.

Fields of fire. Positions should have good fields of fire in all directions. Broad streets and open areas such as parks may offer excellent fields of fire.

Observation. The buildings selected should permit observation into the adjacent sector. The higher stories may offer the best observation, but may attract enemy fire.

Covered routes. These are used for movement and resupply. They are best when they go through or behind buildings.

Fire hazard. Buildings which will burn easily should be avoided.

Time. Buildings which need extensive preparation are undesirable when time is short.

Strength. Buildings in which M2s or tanks are to be placed must be able to withstand the weight of the vehicles and the effects of their weapon systems when firing.

In the defense the M2 should be integrated into the platoon fire plan. The 25-mm cannon and 7.62-mm coax machinegun fields of fire should cover streets and open areas. Once placed in position M2s should not be moved for logistical or administrative functions. Other vehicles should accomplish these function, when possible.

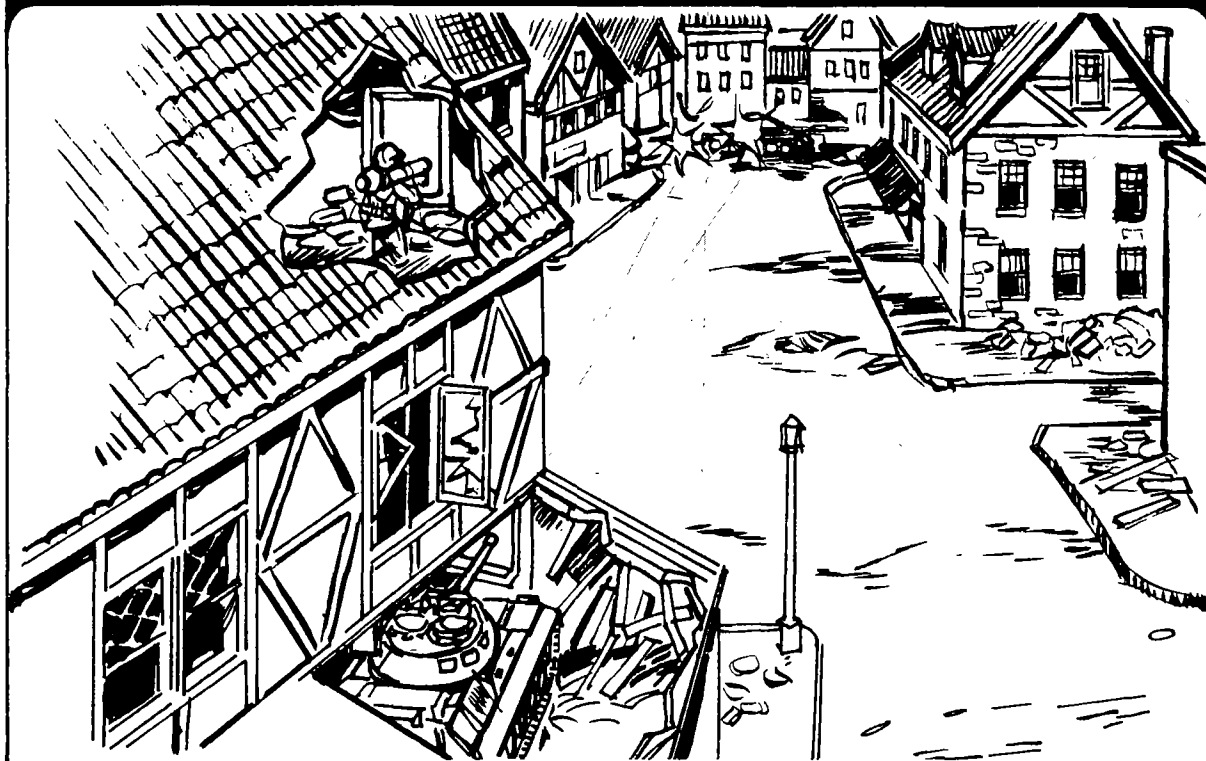
Once the platoon leader picks the building(s) he will defend, he positions his fighting vehicle teams and close combat teams. M2s and dismounted machineguns should be positioned to have grazing fire. Dragons should be positioned on upper stories for longer range and to permit firing at the tops of tanks. Squads should be assigned primary and, if feasible, supplementary and alternate positions for their close combat teams and fighting vehicle teams. These positions should permit continuous coverage of the primary sector and all-round defense.

Due to the close engagement ranges on urban terrain, the 25-mm cannon and the 7.62-mm coax machinegun will be used more

than the TOW. The antitank capability of the M2 is degraded by the short ranges, and must be supplemented by Dragons and LAWs. Dragon and LAW positions should be placed

where they can support the M2 but not attract enemy attention to the location of the M2. The TOWs should be conserved and used only against proper targets.

DRAGON POSITION SUPPORTING M2



None of the platoon's antitank weapons can be fired from unvented or completely enclosed rooms. However, the TOW can be

fired from any room that an M2 can be placed in, provided all hatches are closed and there are no dismounted troops in the room.



Glossary

AG	assistant gunner	FPF	final protective fire
AP	armor piercing	FPL	final protective line
APC	armored personnel carrier	FSO	fire support officer
APDS	armor-piercing discarding sabot	FSO	fire support officer
AR	automatic rifleman	GL	grenade launcher
ASL	authorized stockage list	GSR	ground surveillance radar
ASP	ammunition supply point	HE	high explosive
ASST	assistant	HEAT	high explosive antitank
AT	antitank	ID	identification
ATGM	antitank guided missile	ITV	improved TOW vehicle
BMNT	beginning of morning nautical twilight	KG	kilogram
CA	civil affairs	LAW	light antitank weapon
CAS	close air support	LB	pound
CEV	combat engineer vehicle	LDR	leader
CM	centimeter	LOA	limit of advance
CP	command post	M	meter
CSS	combat service support	MBA	main battle area
DS	direct support	METT	mission, enemy, terrain and weather, and troops available
ELE	elevator	MG	machine gun
EN	entrance	MOPP	mission-oriented protection posture
EOD	explosive ordnance disposal	MP	military police
FAC	forward air controller	MR	motorized rifle
FEBA	forward edge of battle area	NBC	nuclear, biological, chemical
FM	frequency modulation	NW	North West
FO	forward observer	OBJ	objective

OP	observation post	SQD	squad
OPCON	operational control	STANAG	standardization agreement
PDDA	power-driven decontaminating apparatus	STANO	surveillance target acquisition and night observation
PLL	prescribed load list	SVC	service
POL	petroleum, oil, and lubricants	TACAIR	tactical air
PW	prisoner of war	TF	task force
R	rifleman	TL	team leader
RCLR	recoilless rifle	TOC	tactical operations center
RR	railroad	TOT	time on target
SFCP	shore fire control party	TOW	tube-launched, optically-tracked, wire-guided missile
SIGSEC	signal security	TP	transportation priority
SL	squad leader	USSR	Union of Soviet Socialist Republics
SP	self-propelled	WP	white phosphorus
SPEC	specification		

FM 90-10-1

30 SEPTEMBER 1982

By Order of the Secretary of the Army:

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